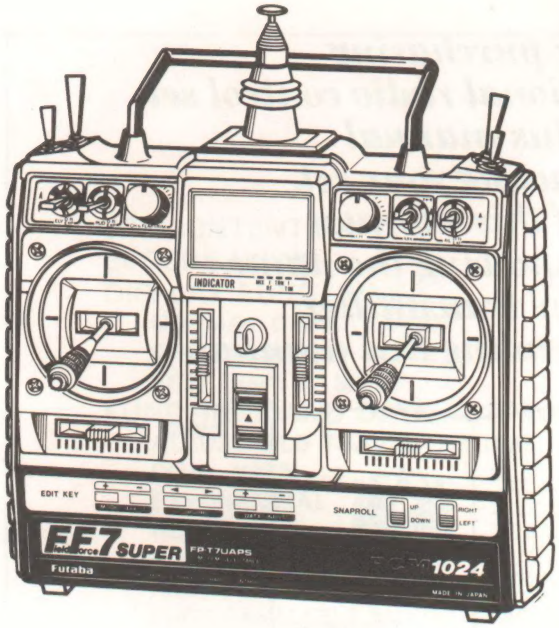


Futaba®

DIGITAL PROPORTIONAL
RADIO CONTROL

FP-7UAPS
PCM 1024 SYSTEM

FP-7UAFS
FM SYSTEM

INSTRUCTION MANUAL

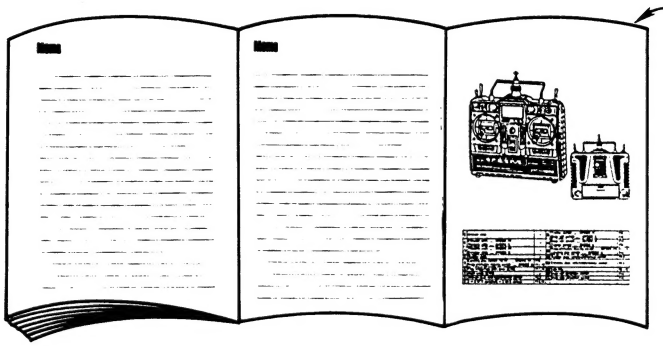
FP-7UAPS, FP-7UAFS

FOR AIRCRAFT
PCM/FM 7 CHANNELS

FUTABA CORPORATION
FUTABA CORPORATION OF AMERICA

D60472

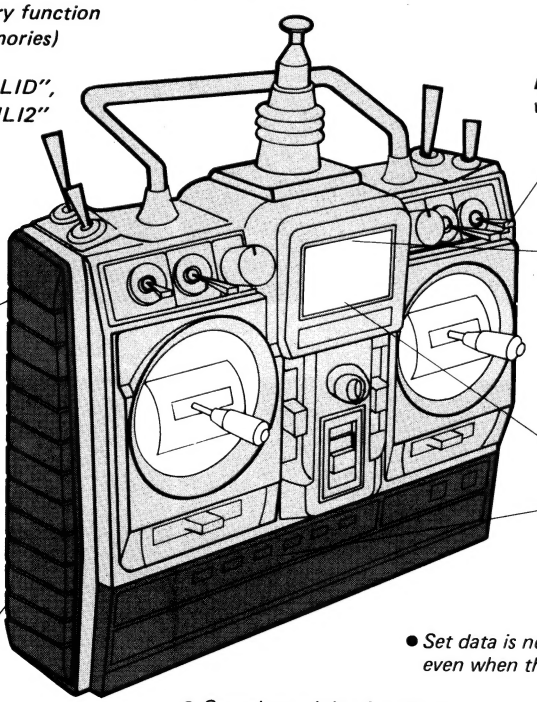
Thank you for purchasing a Futaba digital proportional radio control set. Please read this manual carefully before using your set. The last page of this manual is a double foldout showing the name of each part of the transmitter. Please open it when reading this manual.



● FEATURES

● High resolution and fast response **PCM 1024 system (FP-7UAP)** **FM system (FP-7UAF)** **7 channels system**

- *Model memory function (4 model memories)*
- *Mixing type "ACRO", "GLID", "HLI1" & "HLI2"*



Dual rate switch w/combination function

- *Normal display mode*
- *Error display mode*
- *Edit display mode*

Liquid crystal panel displays all the information necessary in each display mode.

Six edit keys provide for easy data setting.

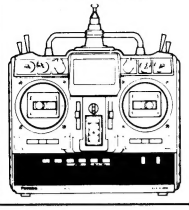
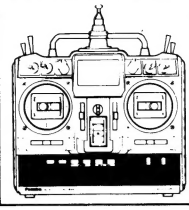
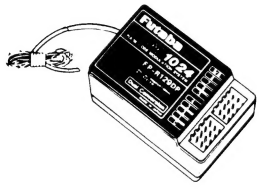
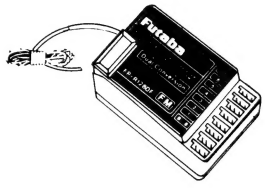
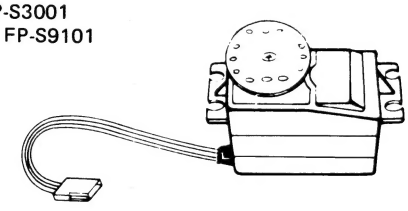
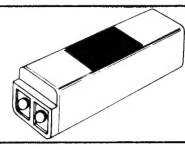
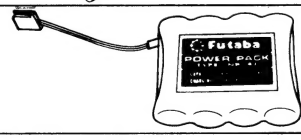
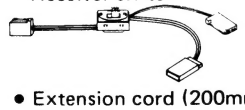
- *RF module*
- *Set data is not lost even when the battery is changed.*
- *Trainer system (Trainer cable optional)*
- *Complete mixing functions*
  - *–Snap-roll 4 channels*
  - *–Flaperon, aileron differential & elevon*
  - *–Flap → elevator mixing*
  - *–Elevator → flap mixing*
  - *–Programmable mixing 2 separate systems*

● TABLE OF CONTENTS

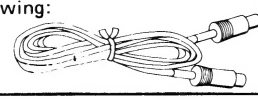
ACRO : Shows a mixing function for the mixing type "ACRO".
HLI 1/2 : Shows a mixing function for the mixing type "HLI1" or "HLI2".
GLID : Shows a mixing function for the mixing type "GLID".

● SET CONTENTS

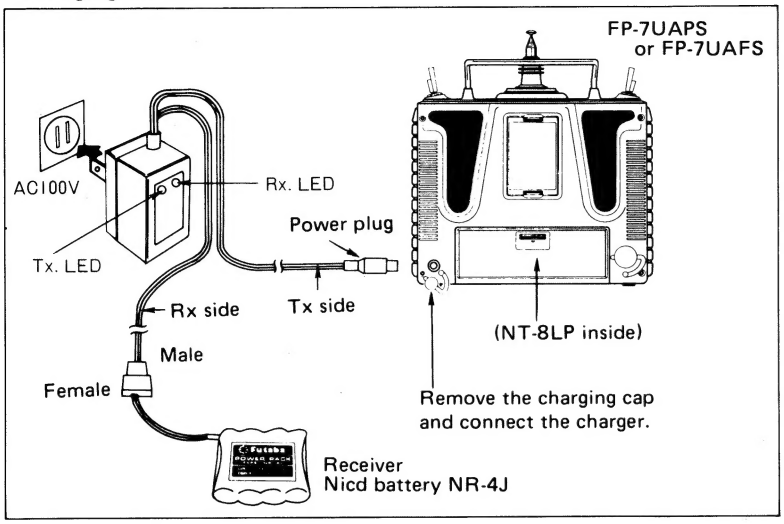
*Specifications are subject to change without prior notice.

	FP-7UAPS	FP-7UAFS	Rating
Transmitter and RF module	● FP-T7UAS (X1)  ● FP-TP-FM (X1) 	● FP-T7UAFS (X1) 	2 sticks, 7 channels, PCM or FM transmitter Transmitting frequency: 72MHz, 50MHz, 35/36MHz, 40/41MHz or 29MHz band Modulation: FM-PCM/PPM Selectable Power requirement: 9.6V Nicd battery pack Current drain: 200mA
Receiver	● FP-R129DP (X1) (Dual Conversion Type) or FP-R137GP (X1) 	● FP-R128DF (X1) (Dual Conversion Type) 	Receiving frequency: 72MHz, 50MHz, 35/36MHz, 40/41MHz or 29MHz band Intermediate frequency: 1st IF 10.7MHz, 2nd IF 455kHz (R129DP, R128DF), 455kHz (R137GP) Power requirement: 4.8V Nicd battery pack (shared with servo) Current drain: 35mA (R129DP), 26mA (R128DF), 25mA (R137GP) Dimensions: 63.0x37.8x24.1mm (R129DP), 63.8x35.4x20.3mm (R128DF) (excluding protruding parts), 57x42x24mm (R137GP) Weight: 45g (R129DP), 40g (R128DF), 45g (R137GP) Receiving range: 500m on the ground, 1000m in the air (range differs with the surroundings)
Servo	● FP-S148 FP-S3001 or FP-S9101 		Control system: + pulse width control Operating angle: Rotary system, one side 45° or greater (including trim) Power requirement: 4.8V or 6.0V (S148, S3001) 4.8V (S9101) Current drain: 8mA (at idle) Output torque: 3kg·cm (S148, S3001), 3.1kg·cm (S9101) Operating speed: 0.22 sec/60° (S148, S3001), 0.16 sec/60° (S9101) Dimensions: 40.4x19.8x36mm (S148, S3001), 38.5x19.5x34.5mm (S9101) Weight: 44.4g/1.56oz. (S148) 45.1g/1.59oz. (S3001), 45g/1.59oz. (S9101)
Transmitter battery	● NT-8LP (X1) 		Voltage: 9.6V Capacity: 500mAh
Receiver battery	● NR-4J (X1) 		Voltage: 4.8V Capacity: 500mAh Dimensions: 51x58x15mm Weight: 95g, 3.35 oz.
Accessories	● Charger  ● Receiver switch  ● Extension cord (200mm) 		● Servo horn ● Servo tray ● Tx hook band ● Frequency flag or ribbon
Crystal	● FM crystal set (Transmitter and Receiver) However use the following crystal types for dual conversion receiver (R129DP, R128DF).		

	72MHz band	50MHz band	40MHz band	35MHz band	Remarks
Receiver crystal type	TYPE 72–10	TYPE 50–10	TYPE 40–10	TYPE 35–10	Dual conversion

Options	The set does not include the following: ● Trainer cable (6-conductor) 	

■ Charging the transmitter and receiver Nicd battery



*Use the special Futaba charger.
• The charging time is 15 hours.

[However when the battery was not used for some time, charge and discharge it 2 – 3 times. Otherwise, the battery will not be charged even after the specified charging time.]

A fully-charged transmitter battery can be used for about 10 flights of 10 minutes each. The airborne NR-4J Nicd battery pack can be used for about 6 flights when 6 servos are used.

Notes: (FBC-8B)

1) First, connect to TX Nicad and red lamp goes on.
2) Then, connect to RX Nicad after connecting, L, E, D, changes color from red to greenish red (orange) which indicates that both TX and RX Nicads are being charged.
3) In case of separate charging, L, E, D, color will be:
   RX Nicad – Green
   TX Nicad – Red

■ Factory setting of transmitter modulation system

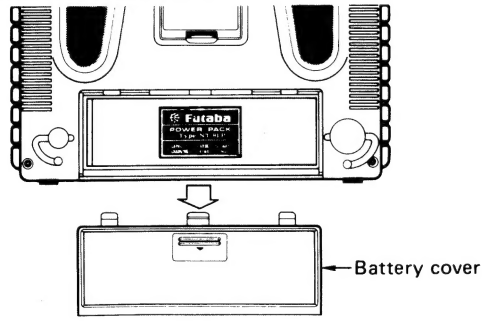
The transmitter modulation system (PCM/PPM mode) is switched by data setting. (For the setting method, see P23.). However, it is set as follows at the factory:

FP-T7UAPS . . . . PCM mode FP-T7UAFS . . . . PPM mode

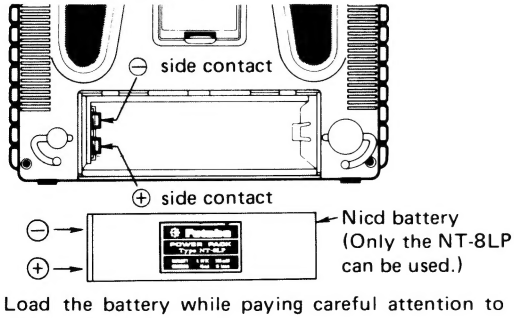
Refer to only the necessary items of the items enclosed in[ ].

■ Changing the transmitter Nicd battery pack

1 Remove the battery cover.



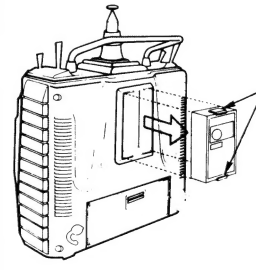
2 Change the Nicd battery.



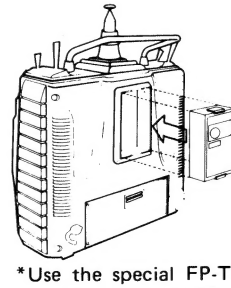
*Load the battery while paying careful attention to the direction of the contacts.

■ Changing the RF module to change the frequency band

1 Remove the RF module.



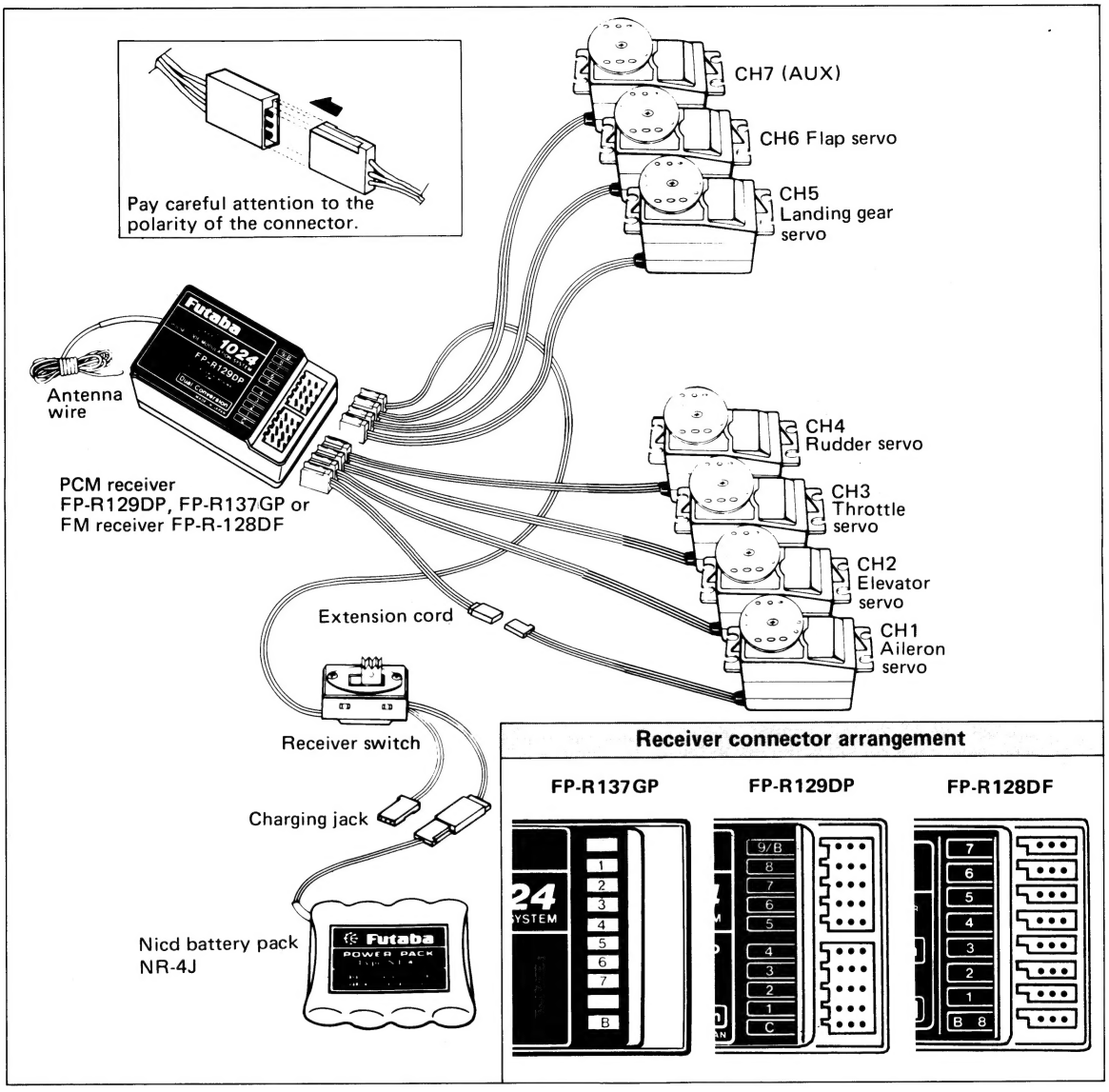
2 Change the RF module.



*Use the special FP-TP-FM RF module for the FP-7UAPS and 7UAFS. Other RF modules cannot be used.

• When the transmitter frequency band is changed, the receiver frequency band must be changed also.

■ RECEIVER AND SERVO CONNECTIONS



PRECAUTIONS

- Connect the receiver, servos, switches, and battery as shown in the figure. Extend the transmitter and receiver antennas to their full length.
- Turn on the transmitter power switch, then turn on the receiver power switch.
  The servos will go to their neutral position. Move the transmitter sticks one at a time to check that each servo follows its control stick movement.
- Connect the pushrods to the servos and check that the direction of travel of each servo matches the direction of movement of its control stick. If a servo does not move in the proper direction, switch its direction with the servo reversing function.
- Operate each servo horn over its full stroke and check that the pushrod does not bind or is not too loose. Unreasonable force applied to the servo horn will adversely affect the servo and

drain the battery pack very quickly. Make the travel of each control mechanism somewhat larger than the full stroke (including trim) of the servo horn. Adjust the servo horns so that they move smoothly even when the trim lever and stick are operated simultaneously in the same direction.

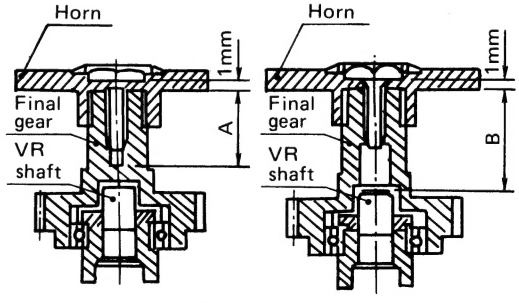
- Be alert for noise.
  This set is noise-resistant, but not completely immune to noise. The use of noiseless parts is recommended.
- When installing the switch harness, cut a rectangular hole slightly larger than the full stroke of the switch and install the switch so that it moves smoothly from ON to OFF. Also do this when the switch is installed inside the fuselage and is turned on and off from the outside with a piece of wire. Install the switch where it will not be exposed to engine oil or dust and dirt.
- Although the antenna appears to be too long, do not cut it or fold it back.
- Install the servos securely. Tighten the mounting screws until the rubber damper is crushed slightly. If the screws are too tight, the cushioning effect will be adversely effected.
- The crystal can be changed from the outside of the receiver case. Always use the Futaba transmitter/receiver matched crystal set to change the band.
- The receiver that is used with the 7UAPS and 7UAFS is a dual conversion receiver. This receivers requires a special crystal so please order the correct crystal set.
- Spare servo horns are supplied. Use them as needed.
- Use extension cords matched to the model.
- Wrap the receiver in sponge rubber. Place it inside a waterproof plastic bag and secure the end of the bag with a rubber band. Do the same with the airborne battery pack.
- Use the rubber bands wrapped around the receiver to hold the servo and switch leads.
- After installation and checking are complete, perform a range check by collapsing the transmitter antenna and extending the receiver antenna to its full length and operating the transmitter from a distance of 20 to 30 meters from the receiver. The servos should operate normally at this distance.

*Differs with the weather and surroundings.

■ SERVO HORN MOUNTING SCREW PRECAUTIONS

Servo horn screws

Horn mounting screw Size	Type	Applicable servo	Type	Dimensions (mm)
2.6x6	tapping	S133, S143 series	B	5.7
2.6x8	tapping	S129 series S130 series, S9101, S5101	A	7.9
		S128 series S132 series S135 series, S9601	B B B	11.9 7.3 8.7
		S138 series S148 series	B B	9.9 10.5
2.6x10	tapping	S131S series, S136G S9201, S9301, S9401	A	9.0
2.6x12	tapping	S134 series, S3301	A	11.3
2.6x5		S3002 S3302 S5102 S9302	B A A A	10.0 5.0 5.5 9.0

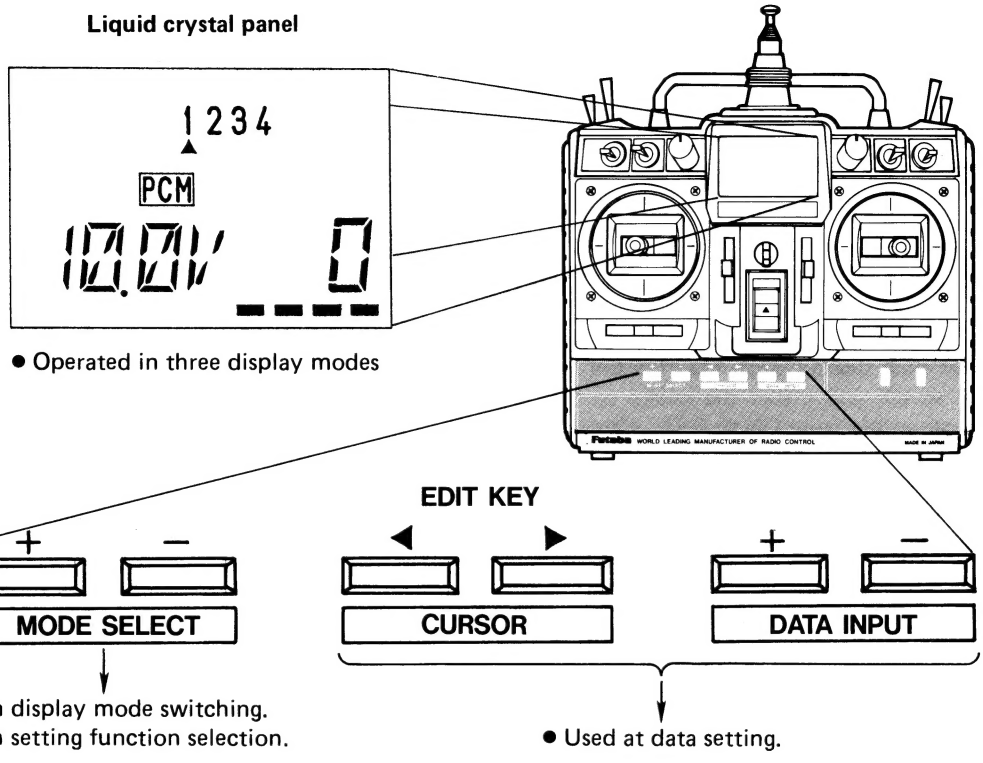


Waterproof type A　　Non-waterproof type B

Note:

- If screws longer than necessary are used, the final gear may be broken or the potentiometer may be damaged or may fall out.

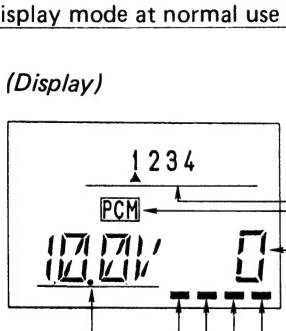
● DISPLAY FUNCTION



Normal display mode

Display mode at normal use (Mode which is displayed when the power switch is turned on.)

(Display)



- Model memory No. (No. 1 – 4)
- PCM/PPM mode display (PCM: PCM mode, PPM: PPM mode)
- Integrated time display (0 – 199 minutes) (Displays the integrated time after reset.)

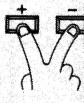
Clock reset

Reset by pressing the [DATA INPUT] keys simultaneously.

Battery voltage display

- Flashes at a 1 second period
- F/S data transfer display (FP-7UAP only) (Lights momentarily each minute)
- RF indicator (Lights when radiowaves are transmitted.)
- Mixing indicator (Flashes when snap roll mixing, 6 → 2 mixing, idle-up, throttle hold, inverted flight or rudder offset is ON.)
- Mixing alarm (buzzer sounds) (Sounds when air brake mixing, throttle hold or idle-up is ON when the power switch is turned on.)

Displa

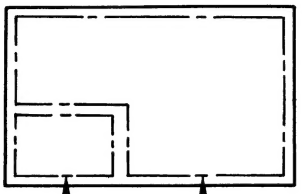


Erro

Edit display mode

Function data setting display mode

(Display)



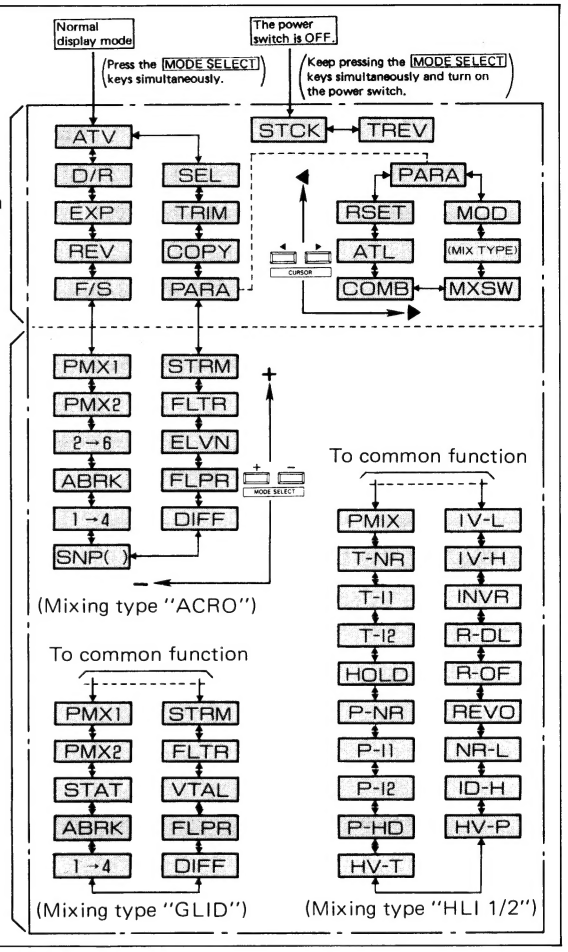
Function name

Function setting parameters
(See the individual function setting items.)

(Set function recall)

- The function is selected by MODE SELECT key.

(However, CURSOR key for "PARA" functions.)



mode switching

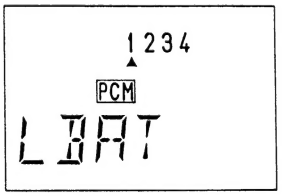
The display mode is switched by pressing the MODE SELECT keys simultaneously.

Error generation

Error display mode

Display mode at error generation (Switched automatically from other modes)

(LOW BATTERY error display)

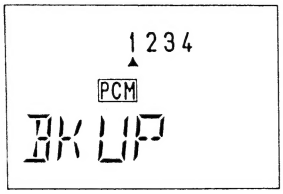


- The characters flash and a buzzer sounds.

Charge, or change, the battery.

Charging method P3

(BACK-UP error display)



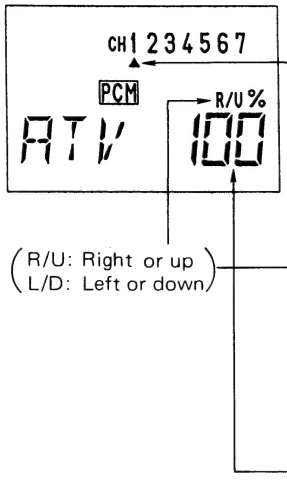
- Characters flash and a buzzer sounds.

Turn off the power switch and then turn on.

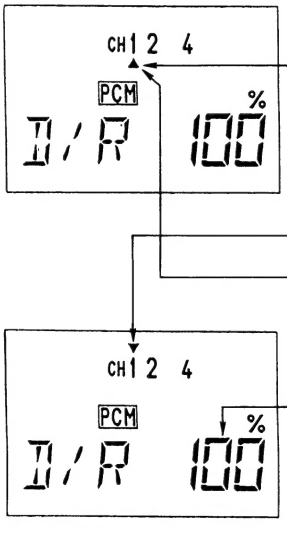
generation

● FUNCTION AND DATA SETTING

To end the edit mode: Press the [MODE SELECT] keys simultaneously. → To normal display mode

Function	Display	Data setting
ATV **ADJUSTABLE TRAVEL VOLUME** This function adjusts the servo left and right throws and is used in linkage correction. ● The rate can be set for each channel. ● The left and right (up, down) rate can be set. ● The rate setting range is 30% to 120%.		[1] CH selection ◄ ► CURSOR — Select the CH to which ATV is to be applied with the [CURSOR] keys. [2] Direction selection Select the Direction with the [STICK], [VR], or [SWITCH]. The rate described below is set. [3] Rate setting + − DATA INPUT — Set the rate with the [DATA INPUT] keys. (When the + and − keys are pressed simultaneously, 100% is set.) Set for a different CH and direction by repeating steps [1] to [3].

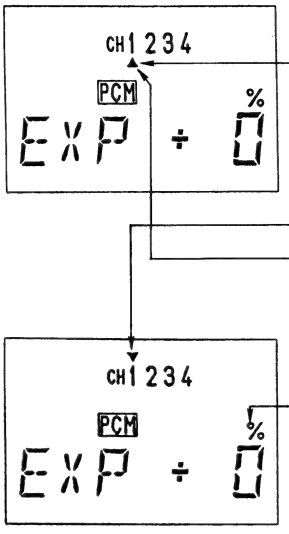
+ MODE SELECT → To D/R

Function	Display	Data setting
D/R **DUAL RATE** The rate can be switched with the [D/R SWITCH]. ● D/R can be set for CH1 (aileron), CH2 (elevator), and CH4 (rudder). ● D/R can be set for each direction of the [D/R SWITCH]. With this feature you can select which switch position you want for high rate and low rate. ● The rate setting range is 30% to 120%. *Related function COMBINATION SWITCH. P22 [D/R SWITCH] 		[1] CH selection ◄ ► CURSOR — Select the CH for which D/R is to be set with the [CURSOR] keys. [2] D/R switch direction selection AIL. D/R — Switch to the direction for which the [D/R SWITCH] is to be set. [3] Rate setting + − DATA INPUT — Set the rate with the [DATA INPUT] keys. (When the + and − keys are pressed simultaneously, 100% is set.) Set for a different CH and [D/R SWITCH] direction by repeating steps [1] to [3].

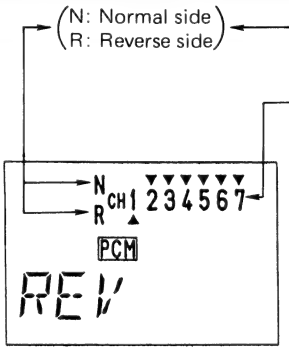
+ MODE SELECT → To EXP

● FUNCTION AND DATA SETTING

To end the edit mode: Press the [MODE SELECT] keys simultaneously. → To normal display mode

Function	Display	Data setting
EXP **EXPONENTIAL** This function modifies the operating curve so that operation is easy when the movement of the servos becomes sluggish or sensitive near the neutral position. (However, near the slow position for throttle.) ● EXP can be set for CH1 (aileron), CH2 (elevator), CH3 (throttle), and CH4 (rudder). However, except CH3 when the mixing type is "HLI1" or "HLI2". ● The rate can be set for each direction of the [D/R SWITCH]. (However, there is no [D/R SWITCH] for the throttle.) ● The rate setting range is −100% (slow side) to +100% (quick side) in 4% steps. [EXP SWITCH] ELV. EXP / RUD. EXP / AIL. EXP		[1] CH selection CURSOR keys: Select the CH to which EXP is to be applied with the [CURSOR] keys. [2] D/R switch direction selection AIL EXP: Switch to the direction to which the [D/R SWITCH] is to be set. [3] Rate setting DATA INPUT keys: Set the rate with the [DATA INPUT] keys. (When the + and − keys are pressed simultaneously, 0% is set.) Set for a different CH and [EXP SWITCH] direction by repeating steps [1] to [3]. (Note) At initial flight, test at EXP 0%. Adjustment as desired in accordance with flight is recommended.

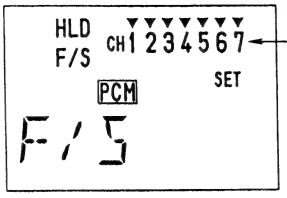
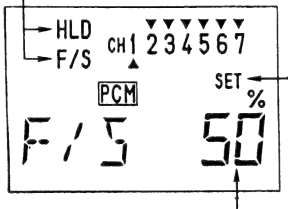
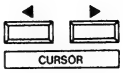
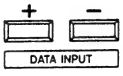
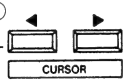
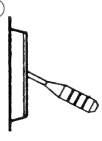
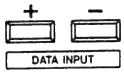
+ MODE SELECT → To REV

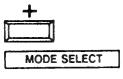
Function	Display	Data setting
REV **REVERSE** Used when modifying servo direction of operation. ● Can be set for each channel.		[1] CH selection CURSOR keys: Select the CH for which REV is to be set with the [CURSOR] keys. (CH NO. flashes) [2] Direction of operation setting DATA INPUT keys: Set the direction with the [DATA INPUT] keys. (+: Normal, −: Reverse) Set for another channel by repeating steps [1] and [2]. (Note) Be especially careful in the aileron direction.

+ MODE SELECT → To F/S

● FUNCTION AND DATA SETTING

To end the edit mode: Press the [MODE SELECT] keys simultaneously. → To normal display mode

Function	Display	Data setting
F/S **FAIL SAFE** F/S and HOLD functions ● F/S and HOLD can be set for all channels. ● The F/S and HOLD functions can be selected for each channel. **(HOLD function setting)** When interference makes reception impossible, the servos are stopped in position just before erroneous operation is performed. When the interference ceases, the HOLD mode is released. **(F/S function setting)** When interference makes reception impossible, the servos move to the position set at the transmitter. When the interference ceases, the F/S function is reset. *The F/S set data is automatically sent every minute. *The PPM mode does not have an F/S function. (FP-7UAFS) *When using the B.F/S function, set the throttle channel F/S function.	 (HLD: HOLD function F/S: F/S function) 	**1** CH selection  Select the CH which is to be set to F/S or HOLD with the [CURSOR] keys. (CH NO. flashes) **2** Function selection  Select the function with the [DATA INPUT] keys. (+: HOLD function −: F/S function) Select the function for another channel by repeating steps **1** and **2**. **3** F/S function selected CH servo operating position setting ①  Set the flashing display to "SET" with the [CURSOR] keys. ②  The channel [STICK], [VR], or [SWITCH] for which the F/S function was selected is held in the desired position.  Press the [DATA INPUT] keys simultaneously. (The servo operating position is set. At the same time, data is automatically sent to the receiver.)



To end the edit mode: Press the [MODE SELECT] keys simultaneously. → To normal display mode

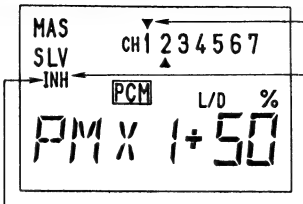
Function	Display	Data setting

PMX1 [ACRO] [GLID]
PROGRAMMABLE MIXING 1

This mixing is useful in correcting bad tendencies of the aircraft and in making operation more pleasant.

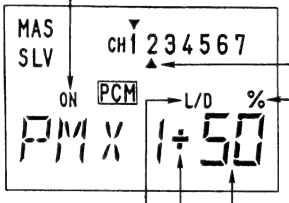
- Mixing of any two channels is possible.
- The left and right (up and down) mixing rate can be set independently.
- Setting range: 0 – 100% (mixing maximum)

[ON/OFF switch]



(INH: Inhibit state)

(Activate state
ON: [P.MIX switch] ON
OFF: [P.MIX switch] OFF)



(R/U: Right or up
L/D: Left or down)

1 Mixing activate/inhibit mode setting

Set the mode with the [DATA INPUT] keys. (+: Activate, –: Inhibit)

2 Master channel selection

① Set the flashing display to the "▼" mark with the [CURSOR] keys.

② Select the channel to be set with the [DATA INPUT] keys.

3 Slave channel selection

① Set the flashing display to the "▲" mark with the [CURSOR] keys.

② Select the channel to be set with the [DATA INPUT] keys.

4 Mixing servo direction of operation setting

① Set the flashing display to "+" (or "–") with the [CURSOR] keys.

② Hold as long as the master channel stick (VR or switch) is in the R/U or L/D direction.

③ Set the direction of operation with the [DATA INPUT] keys. (+: Normal direction, –: Reverse direction)

④ Set another direction by repeating steps ① and ②.

5 Mixing rate setting

① Set the flashing display to "%" with [CURSOR] keys.

② Set the same as **4** – ②

③ Set the mixing rate with the [DATA INPUT] keys. (When the + and – keys are pressed simultaneously, 50% is set.)

④ Set the same as **4** – ④

[MODE SELECT] + → To PMX2

• FUNCTION AND DATA SETTING

To end the edit mode: Press the [MODE SELECT] keys simultaneously. → To normal display mode

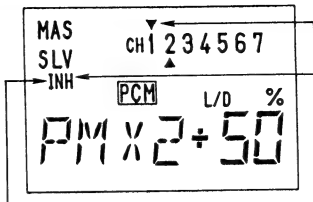
Function	Display	Data setting

PMX2 [ACRO] [GLID]
PROGRAMMABLE MIXING 2

This mixing is useful in correcting bad tendencies of the aircraft and in making operation more pleasant.

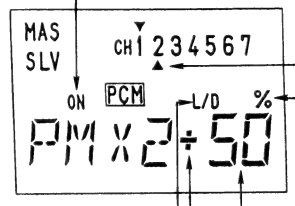
- Mixing of any two channels is possible.
- The left and right (up and down) mixing rate can be set independently.
- Setting range: 0 – 100% (mixing maximum)

[ON/OFF switch]



(INH: Inhibit state)

(Activate state
ON: [P.MIX switch] ON
OFF: [P.MIX switch] OFF)



(R/U: Right or up
L/D: Left or down)

1 Mixing activate/inhibit mode setting

Set the mode with the [DATA INPUT] keys. (+: Activate, –: Inhibit)

2 Master channel selection

① Set the flashing display to the "▼" mark with the [CURSOR] keys.

② Select the channel to be set with the [DATA INPUT] keys.

3 Slave channel selection

① Set the flashing display to the "▲" mark with the [CURSOR] keys.

② Select the channel to be set with the [DATA INPUT] keys.

4 Mixing servo direction of operation setting

① Set the flashing display to "+" (or "–") with the [CURSOR] keys.

② Hold as long as the master channel stick (VR or switch) is in the R/U or L/D direction.

③ Set the direction of operation with the [DATA INPUT] keys. (+: Normal direction, –: Reverse direction)

④ Set another direction by repeating steps ① and ③.

5 Mixing rate setting

① Set the flashing display to "%" with [CURSOR] keys.

② Set the same as **4** – ②

③ Set the mixing rate with the [DATA INPUT] keys. (When the + and – keys are pressed simultaneously, 50% is set.)

④ Set the same as **4** – ④

[+] [MODE SELECT] → To 2 → 6 [ACRO] → To STAT [GLID]

To end the edit mode: Press the [MODE SELECT] keys simultaneously. → To normal display mode

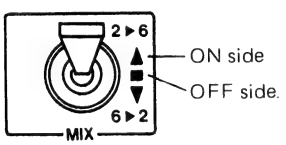
Function	Display	Data setting

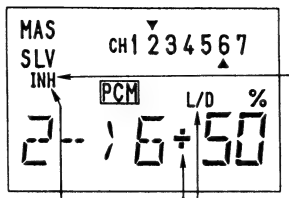
2→6 [ACRO]
ELEVATOR → FLAP MIXING

This is used to apply mixing from elevator to flap. Mixing is usually used so that the flaps are lowered when the elevator is raised. It makes circular maneuvers with stunt aircraft smoother.

- The elevator up side and down side mixing rate can be set independently.

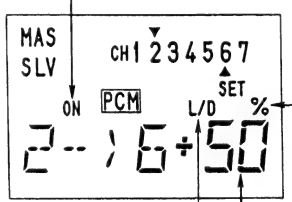
[ON/OFF SWITCH]





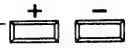
(INH: Inhibit state)

(Activate state
OFF: [MIX SWITCH] OFF
ON: [MIX SWITCH] ON)



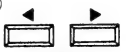
(R/U: Right or up
L/D: Left or down)

[1] Mixing activate/inhibit mode setting

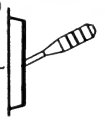


Set the mode with the [DATA INPUT] keys.
(+: Activate
−: Inhibit)

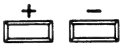
[2] Mixing servo direction of operation setting

① 

Set the flashing display to "+" (or "−") with the [DATA INPUT] keys.

② 

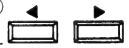
Hold as long as the elevator [STICK] is in the R/U or L/D direction.

③ 

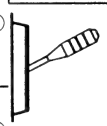
Set the direction of operation with the [DATA INPUT] keys.
(+: Normal direction
−: Reverse direction)

④ Set for another direction of the elevator [STICK] by repeating steps ② and ③.

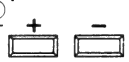
[3] Mixing rate setting

① 

Set the flashing display to "%" with the [CURSOR] keys.

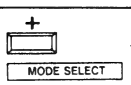
② 

Hold as long as the elevator [STICK] is in the R/U or L/D direction.

③ 

Set the mixing rate with the [DATA INPUT] keys.
(When the + and − keys are pressed simultaneously, 50% is set.)

④ Set a different elevator [STICK] direction by repeating steps ② and ③.



To ABRK

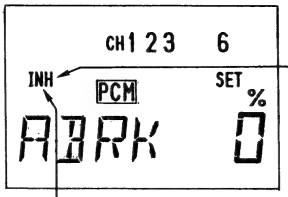
● FUNCTION AND DATA SETTING

To end the edit mode: Press the [MODE SELECT] keys simultaneously. → To normal display mode

Function	Display	Data setting

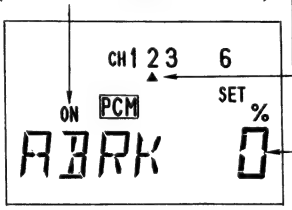
ABRK [ACRO] [GLID]
AIR BRAKE MIXING

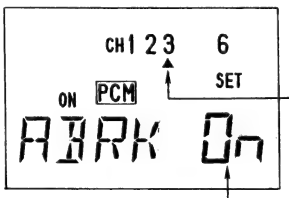
Use this mixing when an air brake is necessary when landing or diving, etc. during flight.
. The operating mode can be selected.

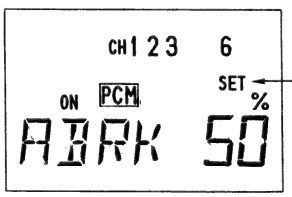


(INH: Inhibit state)

(Activate state
OFF: [MIX SWITCH] OFF
ON: [MIX SWITCH] ON)







1 Activate/inhibit mode setting

Set the mode with the [DATA INPUT] keys.
(+: Activate
–: Inhibit)

2 Elevator, flap and aileron servo throw setting

① Set the flashing display to any channel "▲" with the [CURSOR] keys.

② Set the rate with the [DATA INPUT] keys.
(When the + and – keys are pressed simultaneously, 0% is set.)

*When not using the 2nd aileron, the operating position of the aileron can not be set.

3 Operating mode setting

① Set the flashing display to channel 3 "▲" with the [CURSOR] keys.

② Set the mode with the [DATA INPUT] keys.
(+: "On" Linear mixing
–: "OF" Offset mixing)

4 Cut off point setting

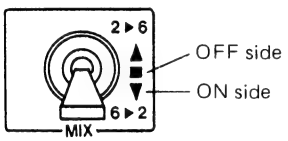
① Set the flashing display to "SET" with the [CURSOR] keys.

② Hold the throttle at the cut off point.

③ Press the [DATA INPUT] keys simultaneously.

● The operating position of the elevator, flap and aileron servos can be set.

[ON/OFF SWITCH]



(Operating mode)
1. Linear mixing
   The mixing rate varies in proportion to the throttle operation. The mixing rate is maximum at low side.
   The cut off point of the mixing can be set.

2. Offset mixing
   When turning on the ON/OFF switch, the servos move to the preset position.

+ [MODE SELECT] To 1 → 4

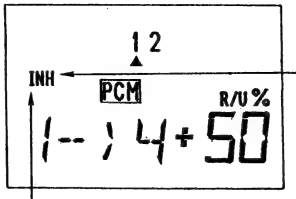
To end the edit mode: Press the [MODE SELECT] keys simultaneously. → To normal display mode

1-4 [ACRO] [GLID] AILERON → RUDDER MIXING

This is used to make a aircraft turn properly.
The operating mode can be selected.

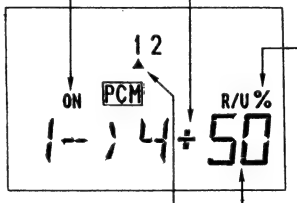
- The aileron left side and right side mixing rate can be set independently.

(Operating mode)
1. Always ON.
2. ON/OFF with the rudder D/R switch.



(INH: Inhibit state)

(ON: Activate state)



[1] Activate/inhibit mode setting

Set the mode with the [DATA INPUT] keys.
(+: Activate
–: Inhibit)

[2] Mixing servo direction of operation setting

① Set the flashing display to "+" or "–" with the [CURSOR] keys.

② Set the direction with the [DATA INPUT] keys.
(+: Normal direction
–: Reverse direction)

*Set each direction of the aileron [STICK].

[3] Mixing rate setting

① Set the flashing display to "%" with the [CURSOR] keys.

② Set the mixing rate with the [DATA INPUT] keys. (When the + and – keys are pressed simultaneously, 50% is set.)

*Set each direction of the aileron [STICK].

[4] Operating mode setting

① Set the flashing display to "12" with the [CURSOR] keys.

② Set the operating mode with the [DATA INPUT] keys.
(+: "2" ON/OFF with the rudder D/R switch.
–: "1" Always ON.)

[MODE SELECT] → To SNP [ACRO] / To DIFF [GLID]

• FUNCTION AND DATA SETTING

To end the edit mode: Press the [MODE SELECT] keys simultaneously. → To normal display mode

Function	Display	Data setting
SNP [ACRO] **SNAP-ROLL** Avalanche and other snap rolls can be performed by switch. • Four snap roll directions can be set. (R/U: Right up snap R/D: Right down snap L/U: Left up snap L/D: Left down snap) • The throw of the channel 1 (aileron), channel 2 (elevator), and channel 4 (rudder) servos can be set. • The SAFETY mode can be set. (Mode in which operation is not performed when the landing gear is down even if the switch is turned on by mistake.)	CH1 2 45 INH PCM % SNP 1+100 (INH: Inhibit state)	[1] Activate/inhibit mode setting + – DATA INPUT Set the mode with the [DATA INPUT] keys. (+: Activate –: Inhibit)
		[2] Select the direction UP RIGHT DOWN LEFT Switch the [DIRECTION SWITCH] to the combination of directions to be set.
	(Activate state OFF: [ON/OFF SWITCH] OFF ON: [ON/OFF SWITCH] ON) CH1 2 45 OFF PCM % SNP 1+100 ("1" to "4" is displayed according to the [DIRECTION SWITCH] position. 1: R/U 2: R/D 3: L/U 4: L/D)	[3] Aileron servo throw setting ① ◀ ▶ CURSOR Set the flashing display to CH1 with the [DATA INPUT] keys. ② + – DATA INPUT Set the rate with the [DATA INPUT] keys. (When the + and – keys are pressed simultaneously, 100% is set.)
		[4] Elevator servo throw setting Set the same as [3] .
		[5] Rudder servo throw setting Set the same as [3] .
		Set for each direction of the [DIRECTION SWITCH] by repeating steps [2] to [5] .
[ON/OFF SWITCH] SNAP ROLL ▼ON	CH1 2 45 OFF PCM SNP 1 5L (F: SAFETY mode released 5L: SAFETY mode set and [CH5 SWITCH] ON 5F: SAFETY mode set and [CH5 SWITCH] OFF)	[6] SAFETY mode setting ① ◀ ▶ CURSOR Set the "▲" to CH5 with the [CURSOR] keys. ② GEAR CH5 Set the [CH5 SWITCH] to the direction for which snap roll is to be turned off (direction in which landing gear is down). ③ – DATA INPUT Press the – side of the [DATA INPUT] keys.
[DIRECTION SWITCH] UP RIGHT DOWN LEFT		[7] SAFETY mode release ① ◀ ▶ CURSOR Set the "▲" to CH5 with the [CURSOR] keys. ② + DATA INPUT Press the + side of the [DATA INPUT] keys.

+ MODE SELECT → To DIFF

To end the edit mode: Press the [MODE SELECT] keys simultaneously. → To normal display mode

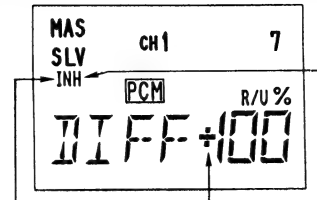
Function	Display	Data setting

DIFF [ACRO] [GLID]
AILERON DIFFERENTIAL

A left and right differential can be applied to the ailerons. This is effective in roll axis correction. (Left and right aileron servos are necessary.)
The left and right mixing rate of each servo can be set independently.

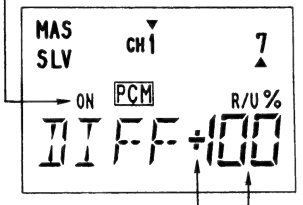
- The operating channels are CH1 and CH7.

*AIL DIFF AND FLAPERON cannot be on simultaneously. The function turned on last has priority.



(INH: Inhibit state)

(ON: Activate state)



1 Activate/inhibit mode setting

Set the mode with the [DATA INPUT] keys. (+: Activate, −: Inhibit)

2 Set the CH1 servo direction of operation.

① Set the flashing display to "+" or "−" with the [CURSOR] keys. (Slave CH: CH1)

② Set the direction of operation with the [DATA INPUT] keys. (+: Normal direction, −: Reverse direction)

3 CH1 servo throw setting

① Set the flashing display to "%" with the [CURSOR] keys. (Slave CH: CH1)

② Hold as long as the aileron [STICK] is at the right. (R/U)

③ Set the rate with the [DATA INPUT] keys. (When the + and − keys are pressed simultaneously, 100% is set.)

*Set each direction of the aileron [STICK].

4 CH7 servo direction of operation setting

① Set the flashing display to "+" or "−" with the [CURSOR] keys. (Slave CH: CH7)

② Set the direction of operation with the [DATA INPUT] keys. (+: Normal direction, −: Reverse direction)

5 CH7 servo throw setting

① Set the flashing display to "%" with the [CURSOR] keys. (Slave CH: CH7)

② Hold as long as the aileron [STICK] is at the right. (R/U)

③ Set the rate with the [DATA INPUT] keys. (When the + and − keys are pressed simultaneously, 100% is set.)

*Set each direction of the aileron [STICK].

[MODE SELECT] + → To FLPR

• FUNCTION AND DATA SETTING

To end the edit mode: Press the [MODE SELECT] keys simultaneously. → To normal display mode

Function	Display	Data setting

FLPR [ACRO] [GLID]
FLAPERON

This is a mixing function which gives the ailerons a flap function. The ailerons can be raised and lowered simultaneously. Aileron operation is also performed.

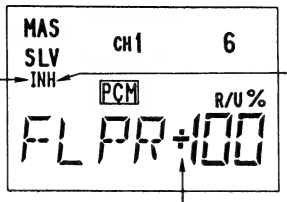
The mixing rate of each servo can be set independently.

- The operating channels are CH1 and CH6.

[FLAP TRIM VOLUME]

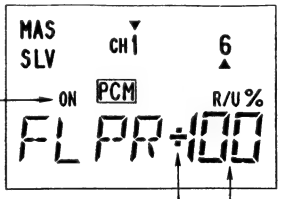
Ailerons can be raised and lowered simultaneously.

*AIL DIFF and FLAPERON cannot be on simultaneously. The function set last has priority.



(INH: Inhibit state)

(ON: Activate state)



[1] Activate/inhibit mode setting

Set the mode with the [DATA INPUT] keys.
(+: Activate
−: Inhibit)

[2] Set the CH1 servo direction of operation

① Set the flashing display to "+" or "−" with the [CURSOR] keys. (Slave CH: CH1)

② Set the direction of operation with the [DATA INPUT] keys.
(+: Normal direction
−: Reverse direction)

[3] CH1 servo throw setting

① Set the flashing display to "%" with the [CURSOR] keys. (Slave CH: CH1)

② Hold as long as the aileron [STICK] is at the right. (R/U)

③ Set the rate with the [DATA INPUT] keys.
(When the + and − keys are pressed simultaneously, 100% is set.)

*Set each direction of the aileron [STICK].

[4] CH6 servo direction of operation setting

① Set the flashing display to "+" or "−" with the [CURSOR] keys. (Slave CH: CH6)

② Set the direction of operation with the [DATA INPUT] keys.
(+: Normal direction
−: Reverse direction)

[5] CH6 servo throw setting

① Set the flashing display to "%" with the [CURSOR] keys, (Slave CH: CH6)

② Hold as long as the aileron [STICK] is at the right. (R/U)

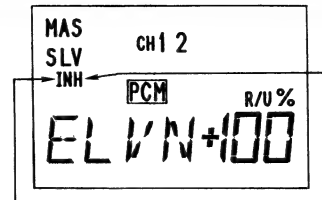
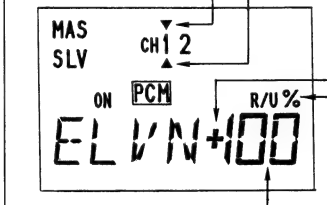
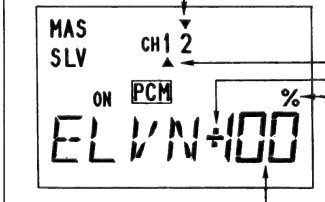
③ Set the rate with the [DATA INPUT] keys.
(When the + and − keys are pressed simultaneously, 100% is set.)

*Set each direction of the aileron [STICK].

+ [MODE SELECT] → To ELVN [ACRO] / To VTAL [GLID]

● FUNCTION AND DATA SETTING

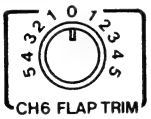
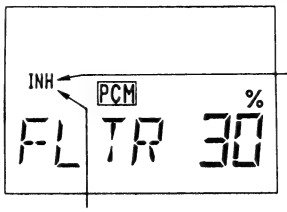
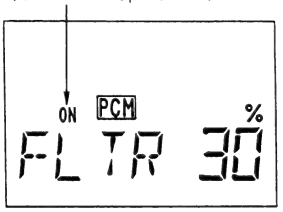
To end the edit mode: Press the [MODE SELECT] keys simultaneously. → To normal display mode

Function	Display	Data setting
ELVN [ACRO] **ELEVON** This mixing can be used with delta wing aircraft. (Aileron operation) The left and right mixing rate of each servo can be set independently. (Elevator operation) The mixing rate of each servo can be set independently. ● The operating channels are CH1 and CH2.	 (INH: Inhibit state)  	[1] Activate/inhibit mode setting Set the mode with the [DATA INPUT] keys. (+: Activate, −: Inhibit) [2] Aileron setting (Master CH: CH1) (CH1 servo throw setting) ① Set the flashing display to "+" or "−" with the [CURSOR] keys. (Slave CH: CH1) Set the direction of operation with the [DATA INPUT] keys. ② Set the flashing display to "%" with the [CURSOR] keys. Set the mixing rate with the [DATA INPUT] keys. *Set each direction of the aileron [STICK]. (CH2 servo throw setting) The same as the above. (Slave CH: CH2) [3] Elevator setting (Master CH: CH2) (CH1 servo throw setting) ① Set the flashing display to "+" or "−" with the [CURSOR] keys. (Slave CH: CH1) Set the direction of operation with the [DATA INPUT] keys. ② Set the flashing display to "%" with the [CURSOR] keys. Set the mixing rate with the [DATA INPUT] keys. (CH2 servo throw setting) The same as the above. (Slave CH: CH2)

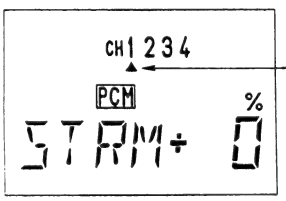
[MODE SELECT] → To FLTR

● FUNCTION AND DATA SETTING

To end the edit mode: Press the [MODE SELECT] keys simultaneously. → To normal display mode

Function	Display	Data setting
FLTR [ACRO] [GLID] **FLAP TRIM** FLAP TRIM (CH6) lever operation ↔ normal operation switching is possible. *For operation when FLAPERON is used, see the FLAPERON function item. [FLAP TRIM LEVER]  	 (INH: Normal operation) (ON: Trim operation)  	[1] Trim/normal mode setting Set the mode with the [DATA INPUT] keys. (+: Trim mode –: Normal mode) [2] Trim rate setting ① Set the flashing display to "%" with the [CURSOR] keys. ② Set the rate with the [DATA INPUT] keys. (When the + and – keys are pressed simultaneously, 30% is set.)

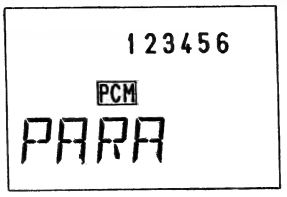
[MODE SELECT] → To STRM

Function	Display	Data setting
STRM [ACRO] [GLID] **SUB TRIM** Each channel neutral position can be adjusted. *One notch of the trim lever corresponds to a sub trim of about 6%.	 	[1] CH selection Select the channel with the [CURSOR] keys. [2] Operating position setting Set the operating position with the [DATA INPUT] keys. (When the + and – keys are pressed simultaneously, 0% is set.)

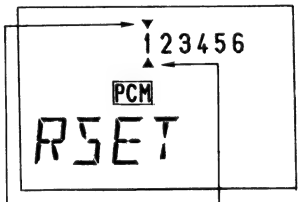
[MODE SELECT] → To PARA

● FUNCTION AND DATA SETTING

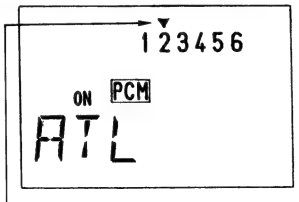
To end the edit mode: Press the [MODE SELECT] keys simultaneously. → To normal display mode

Function	Display	Data setting
PARA **PARAMETER** The following system data can be set. ("PARA" functions) 1. Data reset 2. ATL trim ON/OFF 3. Combination switch 4. Programmable mixing switch 5. Mixing type 6. Modulation		The function is selected by the [CURSOR] keys in the "PARA" functions.

[CURSOR] → To RSET　　[MODE SELECT] → To COPY

Function	Display	Data setting
RSET **DATA RESET** This function can be used to return programmed data to the original factory settings.	 Function No. Active model memory No.	[1] Data reset [DATA INPUT] Press the [DATA INPUT] keys ("+" and "−") simultaneously.

[CURSOR] → To ATL　　[MODE SELECT] → To COPY

Function	Display	Data setting
ATL **ATL TRIM ON/OFF** ATL mode ON or OFF can be selected for throttle trim.	 Function No.	[1] ATL mode setting [DATA INPUT] Set the mode with the [DATA INPUT] keys. (+: ATL mode ON −: ATL mode OFF)

[CURSOR] → To COMB　　[MODE SELECT] → To COPY

• FUNCTION AND DATA SETTING

To end the edit mode: Press the [MODE SELECT] keys simultaneously. → To normal display mode

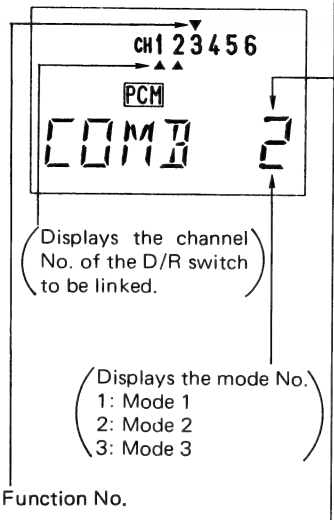
Function	Display	Data setting

COMB
COMBINATION SWITCH

Other D/R switch functions can be linked by aileron [D/R SWITCH].

• Three modes can be set.

Mode	D/R switch to be linked
1	AIL only
2	AIL, ELV
3	AIL, ELV, RUD



[1] Mode setting

+ / − (DATA INPUT) Set the mode with the [DATA INPUT] keys.

CURSOR → To MXSW

+ (MODE SELECT) → To COPY

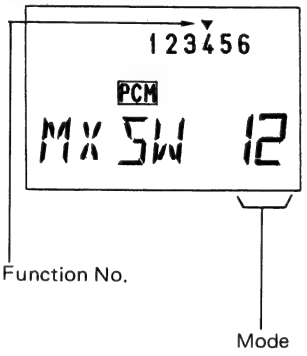
Function	Display	Data setting

MXSW
PROGRAMMABLE MIXING SWITCH

The mixing switch mode can be set.

• Four modes can be set.

Mode	Programmable mixing to be switched
12	P·MIX 1 and 2
1–	P·MIX 1
–2	P·MIX 2
––	–



[1] Mode setting

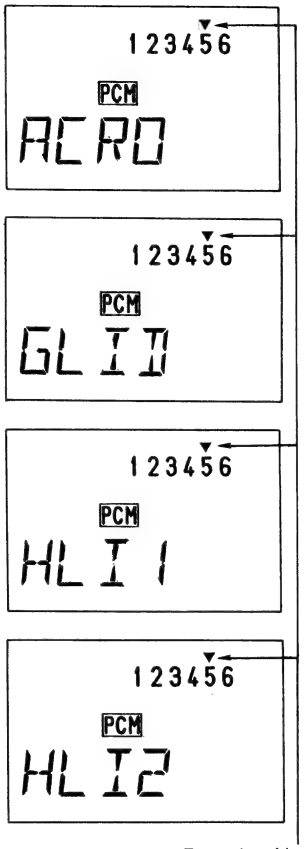
+ / − (DATA INPUT) Set the mode with the [DATA INPUT] keys.

(+: Set the mode of P·MIX 1 with this key.
−: Set the mode of P·MIX 2 with this key.)

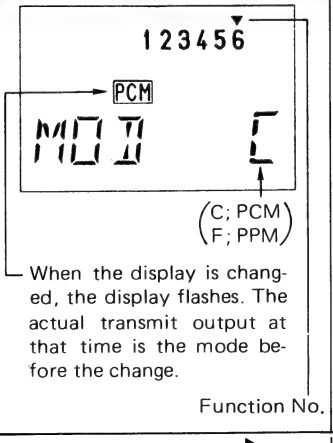
CURSOR → To (MIXING TYPE)

+ (MODE SELECT) → To COPY

To end the edit mode: Press the [MODE SELECT] keys simultaneously. → To normal display mode

Function	Display	Data setting
(MIXING TYPE) The mixing type can be selected. "ACRO": For aircraft "GLID": For glider "HLI1": For helicopter (1 servo mode) "HLI2": For helicopter (2 servo mode)		[1] Type selection + / − DATA INPUT: Select the type with the [DATA INPUT] keys. *When the mixing type is changed, the active model memory data is reset. (Except "HLI1" ⇄ "HLI2") However, the "MOD" function (PCM/PPM) is not reset.

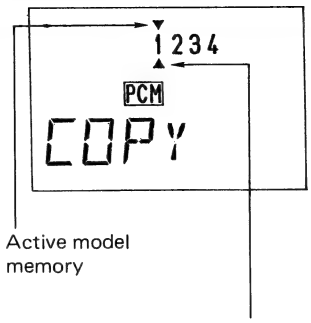
CURSOR: To MOD → MODE SELECT: To COPY

Function	Display	Data setting
MOD **MODULATION** The modulation mode can be switched PCM ↔ PPM. *Select the PCM mode for the FP-7UAPS and the PPM mode for the FP-7UAFS. *When using the trainer function, select the same mode at the instructor side and student side.		[1] Mode selection + / − DATA INPUT: Select the mode with the [DATA INPUT] keys. *When the mode was switched, the transmitter power switch is turned off and transmit output is obtained the next time the transmitter power switch is turned on.

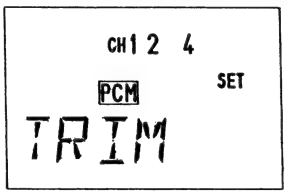
CURSOR: To PARA → MODE SELECT: To COPY

● FUNCTION AND DATA SETTING

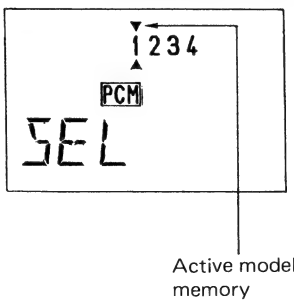
To end the edit mode: Press the [MODE SELECT] keys simultaneously. → To normal display mode

Function	Display	Data setting
COPY **DATA COPY** The active model memory data can be copied onto any model memory data.		1 Model selection CURSOR Select the model memory with the [CURSOR] keys. 2 Copying + − DATA INPUT Press the [DATA INPUT] keys ("+" and "−") simultaneously.

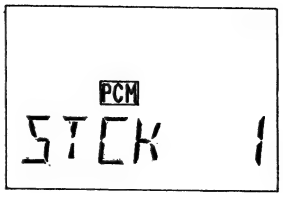
+ MODE SELECT → To TRIM

Function	Display	Data setting
TRIM **TRIM MEMORY** Each trim positions can be memorized, allowing the trim levers to be returned to neutral position.		1 Memorizing + − DATA INPUT Press the [DATA INPUT] keys ("+" and "−") simultaneously. *When the throttle trim is ATL mode, the trim position is not memorized.

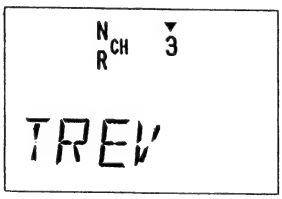
+ MODE SELECT → To SEL

Function	Display	Data setting
SEL **MODEL SELECT** Anyone of the four models can be selected.		1 Model selection CURSOR Select the model with the [CURSOR] keys. 2 Executing + − DATA INPUT Press the [DATA INPUT] keys ("+" and "−") simultaneously.

+ MODE SELECT → To ATV

Function	Display	Data setting
STCK **STICK MODE SELECT** (Usually this function is not used.) *This function is effective for all model memories.		

+ MODE SELECT → To TREV

Function	Display	Data setting
TREV **THROTTLE FUNCTION REVERSE** The direction of the throttle operation can be reversed. *This function is effective for all model memories.		1 Normal/reverse selection + / − DATA INPUT: Set the direction with the DATA INPUT keys. (+ : Normal side −: Reverse side)

+ MODE SELECT → To STCK

● FUNCTION AND DATA SETTING

To end the edit mode: Press the [MODE SELECT] keys simultaneously. → To normal display mode

Function	Display	Data setting

PMIX [HLI 1/2]
PROGRAMMABLE MIXING

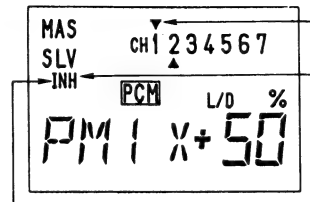
This mixing is useful in correcting bad tendencies of the aircraft and in making operation more pleasant.

- Mixing of any two channels is possible.
- The left and right (up and down) mixing rate can be set independently.
- Setting range 0 to 100%
  ↓
  Mixing maximum

PMIX function
[ON/OFF switch]

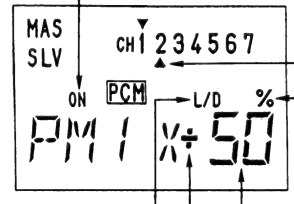
▲ OFF ON
▼ ON OFF
Mode II Mode I

*The PMIX [ON/OFF switch] is also used as the ELV. [D/R switch]. To used it independently as the PMIX [ON/OFF switch] set the COMB function.
Setting method [P.22]



(INH: Inhibit state)

(Activate state
ON: P.MIX switch ON
OFF: P.MIX switch OFF)



(R/U: Right or up
L/D: Left or down)

1 Mixing activate/inhibit mode setting

Set the mode with the [DATA INPUT] keys.
(+: Activate
−: Inhibit)

2 Master channel setting

① Set the flashing display to the "▼" mark with the [CURSOR] keys.

② Select the channel to be set with the [DATA INPUT] keys.

3 Slave channel selection

① Set the flashing display to the "▲" mark with the [CURSOR] keys.

② Select the channel to be set with the [DATA INPUT] keys.

4 Mixing servo direction of operation setting

① Set the flashing display to "+" (or "−") with the [CURSOR] keys.

② Held as long as the master channel stick (VR or switch) is in the R/U or L/D direction.

③ Set the direction of operation with the [DATA INPUT] keys.
(+: Normal direction
−: Reverse direction)

④ Set another direction by repeating steps ② and ③

5 Mixing rate setting

① Set the flashing display to "%" with [CURSOR] keys.

② Set the same as 4 − ②

③ Set the mixing rate with the [DATA INPUT] keys.
(When the + and − keys are pressed simultaneously, 50% is set.)

④ Set the same as 4 − ④

[MODE SELECT] → To T-NR

To end the edit mode: Press the [MODE SELECT] keys simultaneously. → To normal display mode

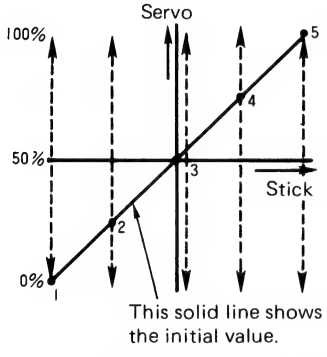
Function	Display	Data setting

T-NR [HLI 1/2]

NORMAL THROTTLE CURVE

At normal, the THROTTLE CURVE divides the full stroke of the [STICK] into four equal parts and allows adjustment of a total of five points.

- Each point can be set over the 0 to 100% range.

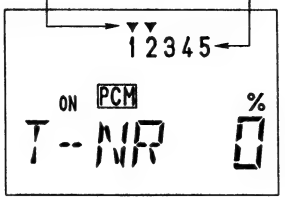


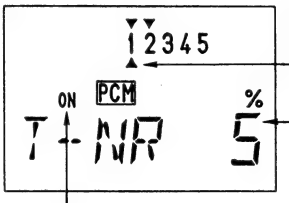
1 to 5: Setting point No.

*Points are connected by a straight line.

(Indicates the current throttle stick position)

(Setting point No.)





(ON: Shows that this function is activated
However, when the idle-up or throttle hold function is ON, "OFF" is displayed.)

1 Setting of each point

① ◄ ► CURSOR — Set the point No. to be set with the [CURSOR] keys.

② + − DATA INPUT — Set to the desired operating position with the [DATA INPUT] keys.
(When the + and − keys are pressed simultaneously, the operating position is set to the initial value.)

③ Set for a different point by repeating steps ① and ②.

+ MODE SELECT — To T-I1

• FUNCTION AND DATA SETTING

To end the edit mode: Press the [MODE SELECT] keys simultaneously. → To normal display mode

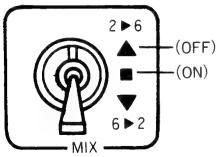
Function	Display	Data setting

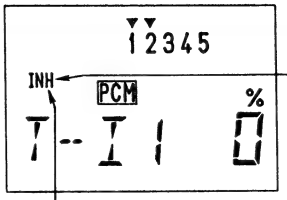
T-11 [HLI 1/2]
IDLE-UP 1 THROTTLE CURVE

The THROTTLE CURVE can be set at IDLE-UP 1 function operation.

- The throttle servo hold position can be set.
- Setting range: –100 (low side) – +100% (high side)

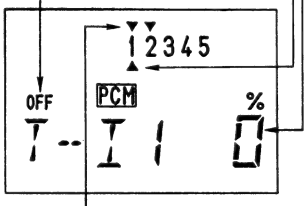
IDLE-UP function
[ON/OFF switch]





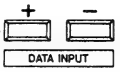
(INH: Shows that this function is inhibited)

(Activate state
ON: [ON/OFF switch] ON
OFF: [ON/OFF switch] OFF)



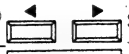
(Current throttle stick position)

[1] Activate/inhibit mode setting

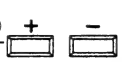


Set the mode with the [DATA INPUT] keys.
(+: Activate
–: Inhibit)

[2] Setting each point

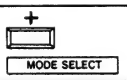
① 

Set the point No. to be set with the [CURSOR] keys.

② 

Set the desired operating position with the [DATA INPUT] keys.
(When the + and – keys are pressed simultaneously, the operating position is set to the initial value.)

③ Set for a different point by repeating steps ① and ②.



To T-12

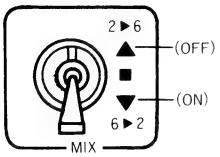
Function	Display	Data setting

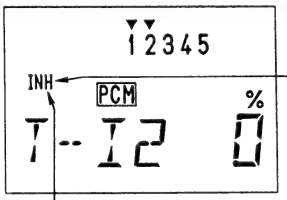
T-12 [HLI 1/2]
IDLE-UP 2 THROTTLE CURVE

The THROTTLE CURVE can be set at IDLE-UP 2 function operation.

- The throttle servo hold position can be set.
- Setting range: –100 (low side) – +100% (high side)

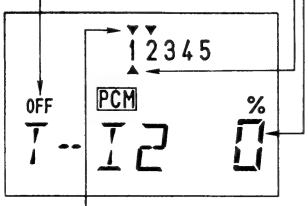
IDLE-UP function
[ON/OFF switch]





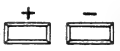
(INH: Shows that this function is inhibited)

(Activate state
ON: [ON/OFF switch] ON
OFF: [ON/OFF switch] OFF)



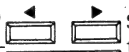
(Current throttle stick position)

[1] Activate/inhibit mode setting

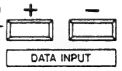


Set the mode with the [DATA INPUT] keys.
(+: Activate
–: Inhibit)

[2] Setting each point

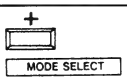
① 

Set the point No. to be set with the [CURSOR] keys.

② 

Set the desired operating position with the [DATA INPUT] keys.
(When the + and – keys are pressed simultaneously, the operating position is set to the initial value.)

③ Set for a different point by repeating steps ① and ②.



To HOLD

To end the edit mode: Press the [MODE SELECT] keys simultaneously. → To normal display mode

Function	Display	Data setting

HOLD [HLI 1/2]

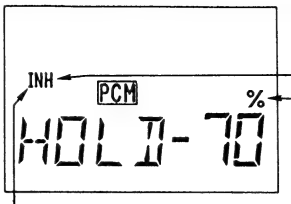
THROTTLE HOLD

This function stops the throttle servo during auto rotation.

- The throttle servo hold position can be set.
- Setting range: –100 (low side) – +100% (high side)

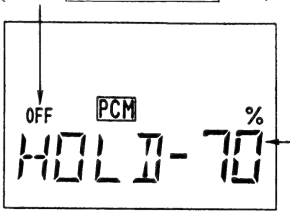
THROTTLE HOLD function

[ON/OFF switch]



(INH: Shows that the THROTTLE HOLD function is inhibited.)

(THROTTLE HOLD activate
ON: [ON/OFF switch] ON
OFF: [ON/OFF switch] OFF)



[1] Activate/inhibit mode setting

[+] [–] DATA INPUT — Set the mode with the [DATA INPUT] keys.
(+: Activate
–: Inhibit)

[2] Throttle servo hold position setting

① [◄] [►] CURSOR — Set the flashing display to the "%" with the [CURSOR] keys.

② [+] [–] DATA INPUT — Set the hold position with the [DATA INPUT] keys.
(When the + and – keys are pressed simultaneously, the hold position is set to –70%.)

[+] MODE SELECT → To P-NR

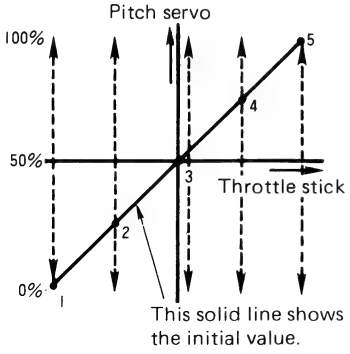
Function	Display	Data setting

P-NR [HLI 1/2]

NORMAL PITCH CURVE

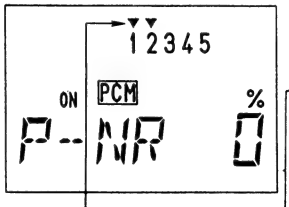
The PITCH CURVE divides the full stroke of the [STICK] into four equal parts and allows adjustment of five points.

- Each point can be set from 0 to 100%.



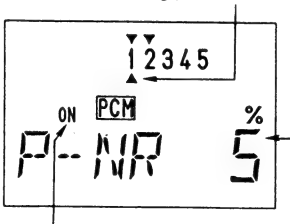
This solid line shows the initial value.
1 – 5: Setting point No.

*1 Each point is connected by a straight



(Indicates the current throttle stick position)

(Setting point No.)



(ON: Shows that this function is activated
However, when the idle-up or throttle hold function is ON, "OFF" is displayed.)

[1] Setting each point

① [◄] [►] CURSOR — Set to the point No. to be set with the [CURSOR] keys.

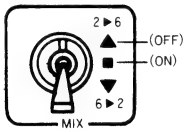
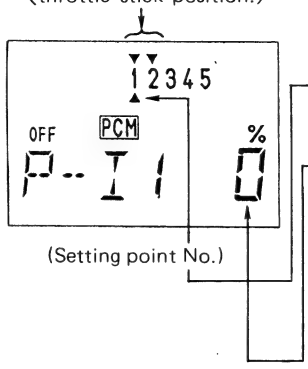
② [+] [–] DATA INPUT — Set the desired operating position with the [DATA INPUT] keys.
(When the + and – keys are pressed simultaneously, the operating position is set to the initial value.)

③ Set for a different point by repeating steps ① and ②.

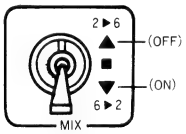
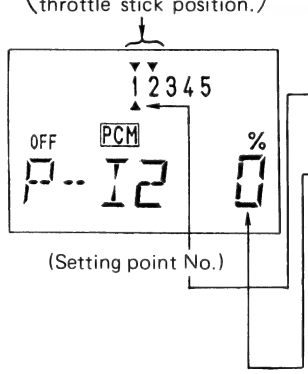
[+] MODE SELECT → To P-I I

• FUNCTION AND DATA SETTING

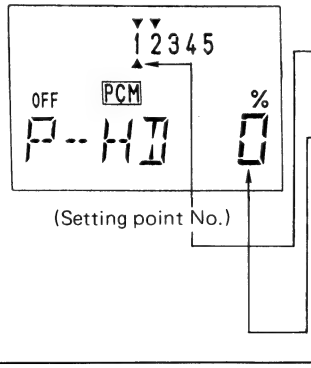
To end the edit mode: Press the [MODE SELECT] keys simultaneously. → To normal display mode

Function	Display	Data setting
P-11 [HLI 1/2] **IDLE UP 1 PITCH CURVE** The PITCH CURVE at IDLE-UP 1 function operation can be set. (The setting points and setting range are the same as the NORMAL PITCH CURVE.) **IDLE-UP function** [ON/OFF switch] 	(Indicates the current throttle stick position.)  (Setting point No.)	[1] Setting each point ① CURSOR — Set to the point No. to be set with the [CURSOR] keys. ② DATA INPUT (+ / −) — Set to the desired operating position with the [DATA INPUT] keys. (When the + and − keys are pressed simultaneously, the operating position is set to the initial value.) ③ Set for a different point by repeating steps ① and ②

MODE SELECT (+) → To P-12

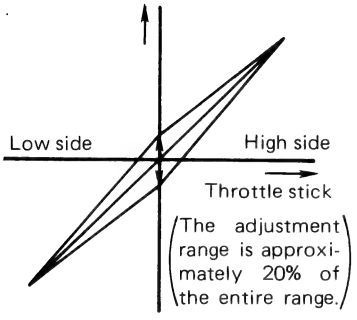
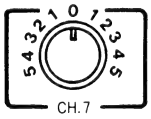
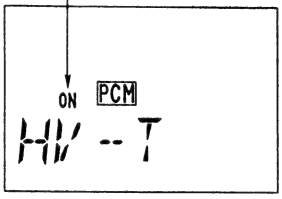
Function	Display	Data setting
P-12 [HLI 1/2] **IDLE UP 2 PITCH CURVE** The PITCH CURVE at IDLE-UP 2 function operation can be set. (The setting points and setting range are the same as the NORMAL PITCH CURVE.) **IDLE-UP function** [ON/OFF switch] 	(Indicates the current throttle stick position.)  (Setting point No.)	[1] Setting each point ① CURSOR — Set to the point No. to be set with the [CURSOR] keys. ② DATA INPUT (+ / −) — Set to the desired operating position with the [DATA INPUT] keys. (When the + and − keys are pressed simultaneously, the operating position is set to the initial value.) ③ Set for a different point by repeating steps ① and ②

MODE SELECT (+) → To P-HD

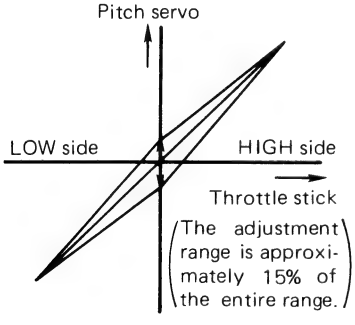
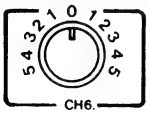
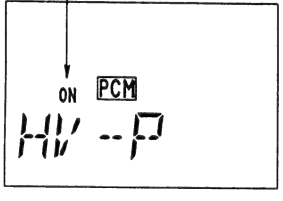
Function	Display	Data setting
P-HD [HLI 1/2] **HOLD PITCH CURVE** The PITCH CURVE at THROTTLE HOLD function operation can be set. (The setting points and setting range are the same as NORMAL PITCH CURVE.) **THROTTLE HOLD function** [ON/OFF switch] 	(Shows the current throttle stick position)  (Setting point No.)	[1] Setting each point ① CURSOR — Set to the point No. to be set with the [CURSOR] keys. ② DATA INPUT (+ / −) — Set to the desired operating position with the [DATA INPUT] keys. (When the + and − keys are pressed simultaneously, the operating position is set to the initial value.) ③ Set for a different point by repeating steps ① and ②.

MODE SELECT (+) → To HV-T

To end the edit mode: Press the [MODE SELECT] keys simultaneously. → To normal display mode

Function	Display	Data setting
HV-T [HLI 1/2] **HOVERING THROTTLE** This is the throttle trim function near the hovering point. THROTTLE SERVO  (The adjustment range is approximately 20% of the entire range.) [HOVERING THROTTLE KNOB]  	(ON: Shows that this function is activated INH: Shows that this function is inhibited)  	[1] Activate/inhibit setting + − DATA INPUT Set the mode with the [DATA INPUT] keys. (+: Activate −: Inhibit)

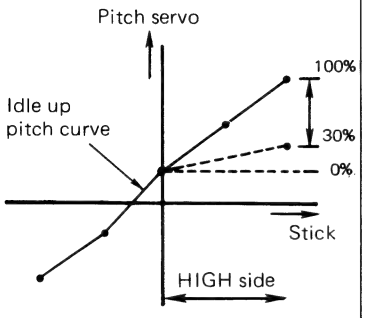
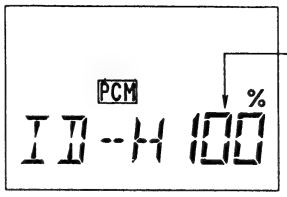
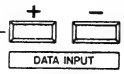
+ MODE SELECT → To HV-P

Function	Display	Data setting
HV-P [HLI 1/2] **HOVERING PITCH** This is the pitch trim function near the hovering point.  (The adjustment range is approximately 15% of the entire range.) [HOVERING PITCH KNOB]  	(ON: Shows that this function is activated INH: Shows that this function is inhibited)  	[1] Activate/inhibit mode setting + − DATA INPUT Set the mode with the [DATA INPUT] keys. (+: Activate −: Inhibit)

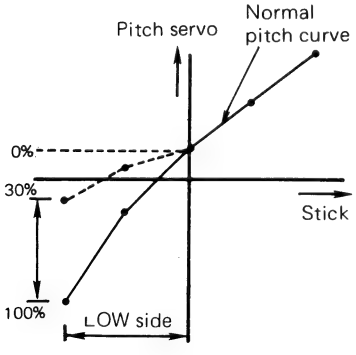
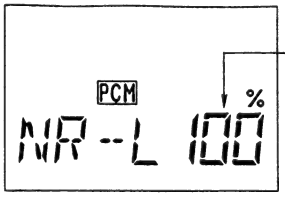
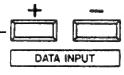
+ MODE SELECT → To ID-H

● FUNCTION AND DATA SETTING

To end the edit mode: Press the [MODE SELECT] keys simultaneously. → To normal display mode

Function	Display	Data setting
ID-H [HLI 1/2] **IDLE UP HIGH PITCH** The HIGH side pitch rate at IDLE-UP function operation can be set.  ● Setting range: 30% to 100% *When not using this function, set the rate to 100%.	 	[1] Rate setting  Set the rate with the [DATA INPUT] keys. (When the + and − keys are pressed simultaneously, the rate is set to 100%.)

+ MODE SELECT → To NR-L

Function	Display	Data setting
NR-L [HLI 1/2] **NORMAL LOW PITCH** The LOW side pitch rate at normal can be set.  ● Setting range: 30 to 100% *When not using this function, set the rate to 100%.	 	[1] Rate setting  Set the rate with the [DATA INPUT] keys. (When the + and − keys are pressed simultaneously, the rate is set to 100%.)

+ MODE SELECT → To REVO

To end the edit mode: Press the [MODE SELECT] keys simultaneously. → To normal display mode

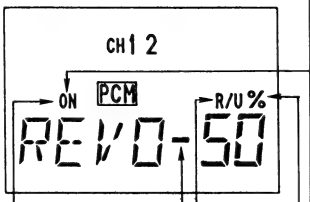
Function	Display	Data setting

REVO [HLI 1/2]

REVOLUTION MIXING

This function is used to cancel the reaction torque of the rotor at pitch → rudder mixing.

- The mixing direction is changed with the direction of rotation of the main rotor.
- The mixing rate can be set separately for the HIGH side and LOW side of the [THROTTLE STICK].
- Setting range: 0 to 100%
  ↓
  Mixing maximum
- The mixing ON/OFF can be set at throttle hold.



(ON: Shows that this function is activated
INH: Shows that this function is inhibited)

(R/U: LOW side
L/D: HIGH sie)

1 Activate/inhibit setting

[+] [−] DATA INPUT — Set the mode with the [DATA INPUT] keys.
(+: Activate
−: Inhibit)

2 Mixing direction setting

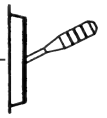
① ◄ ► CURSOR — Set the flashing display to the side of the rate with the [CURSOR] keys.

② [+] [−] DATA INPUT — Set the direction with the [DATA INPUT] keys.

Main rotor direction of rotation	[DATA INPUT] key	Display
Clockwise	−	−
Counterclockwise	+	+

3 Mixing rate setting

① ◄ ► CURSOR — Set the flashing display to the "%" with the [CURSOR] keys.

②  Throttle stick held at the HIGH side.

③ [+] [−] DATA INPUT — Set the mixing rate with the [DATA INPUT] keys. (When the + and − keys are pressed simultaneously, the rate is set to 50%.)

④ Set for the throttle stick LOW side by holding the throttle stick at the LOW side and repeating step ③.

4 ON/OFF setting at throttle hold

① ◄ ► CURSOR — Set the flashing display to "12" with the [CURSOR] keys.

② [+] [−] DATA INPUT — Set the mode with the [DATA INPUT] keys.

Mixing	[DATA INPUT] key	Display
OFF	−	1
ON	+	2

[+] MODE SELECT → To R-OF

● FUNCTION AND DATA SETTING

To end the edit mode: Press the [MODE SELECT] keys simultaneously. → To normal display mode

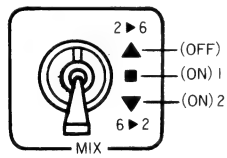
Function	Display	Data setting

R-OF [HLI 1/2]
RUDDER OFFSET

Pitch → rudder mixing can be disconnected and the neutral position for flight can be set separately from rudder trim.

- Setting range: −100 to +100%
- [ON/OFF switch] can be selected.
  [IDLE-UP SWITCH] (when IDLE-UP function set) or [CH5 SWITCH]

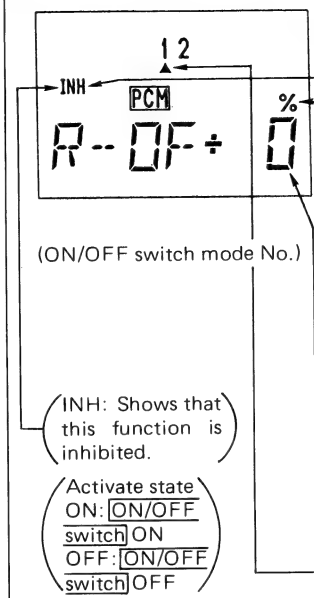
RUDDER OFFSET function
[ON/OFF switch]



(IDLE-UP ON/OFF switch)

or

*However, when the INVERTED FLIGHT function is used, RUDDER OFFSET is turned on and off by [IDLE-UP switch] without regard to [ON/OFF switch] selection.



1 Activate/inhibit setting

+ / − DATA INPUT — Set the mode with the [DATA INPUT] keys.
(+ : Activate
−: Inhibit)

2 Offset rate setting

① ◀ / ▶ CURSOR — Set the flashing display to "%" with the [CURSOR] keys.

② + / − DATA INPUT — Set the offset rate with the [DATA INPUT] keys.
(When the + and − keys are pressed simultaneously, the rate is set to 0%.)

3 ON/OFF switch selection

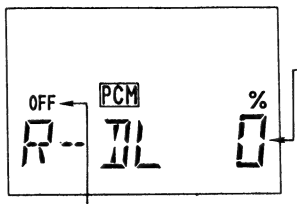
① ◀ / ▶ CURSOR — Set the flashing display to the "▲" of the [ON/OFF switch] mode No. with the [CURSOR] keys.

② + / − DATA INPUT — Select the [ON/OFF switch] mode No. with the [DATA INPUT] keys.

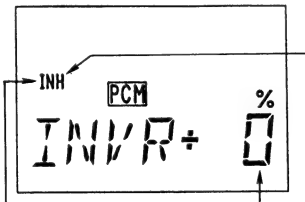
Mode	[ON/OFF switch]	[DATA INPUT] key
1	IDLE UP	−
2	CH5	+

+ MODE SELECT → To R-DL

To end the edit mode: Press the [MODE SELECT] keys simultaneously. → To normal display mode

Function	Display	Data setting
R-DL [HLI 1/2] **RUDDER OFFSET DELAY** The operating speed of the rudder servo at rudder offset function ON/OFF can be varied. • Setting range: 0 to 100% ↓ MAX (4% steps)	 (Indicates the rudder offset function setting state.)	[1] Delay rate setting + − DATA INPUT Set the delay rate with the [DATA INPUT] keys. (When the + and − keys are pressed simultaneously, the rate is set to 0%.)

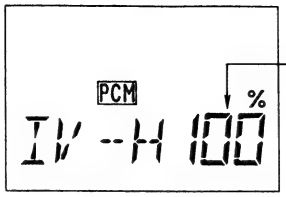
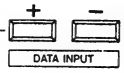
+ MODE SELECT → To INVR

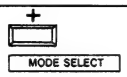
Function	Display	Data setting
INVR [HLI 1/2] **INVERTED FLIGHT** This function performs inverted flight by normal flight stick operation. Forward flight can be set when normal. • The cross rate can be set. *At inverted flight, the direction of the elevator and rudder servos is reversed. INVERTED FLIGHT function [SWITCH] (Normal)  (Invert)	 (INH: Shows that this function is inhibited) (Invert mode ON: Inverted flight OFF: Normal flight)	[1] Activate/inhibit setting + − DATA INPUT Select the mode with the [DATA INPUT] keys. (+: Activate −: Inhibit) [2] Cross rate setting ① ◀ ▶ CURSOR Set the flashing display to "%" with the [CURSOR] keys. ② + − DATA INPUT Set the point with the [DATA INPUT] keys. (When the + and − keys are pressed simultaneously, the point is set to 0%.)

+ MODE SELECT → To IV-H

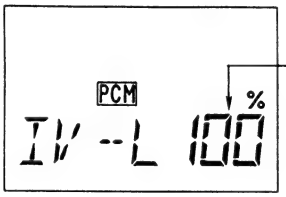
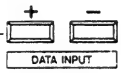
● FUNCTION AND DATA SETTING

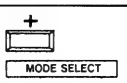
To end the edit mode: Press the [MODE SELECT] keys simultaneously. → To normal display mode

Function	Display	Data setting
IV-H [HLI 1/2] **INVERT HIGH PITCH** The HIGH pitch rate at inverted flight can be adjusted. ● Setting range: 30 to 100%		[1] Rate setting  Set the rate with the [DATA INPUT] keys. (When the + and − keys are pressed simultaneously, the rate is set to 100%.)



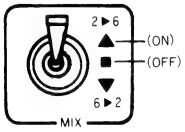
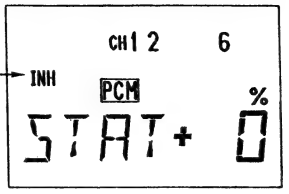
To IV-L

Function	Display	Data setting
IV-L [HLI 1/2] **INVERT LOW PITCH** The LOW pitch rate at inverted flight can be adjusted. ● Setting range: 30 to 100%.		[1] Rate setting  Set the rate with the [DATA INPUT] keys. (When the + and − keys are pressed simultaneously, the rate is set to 100%.)

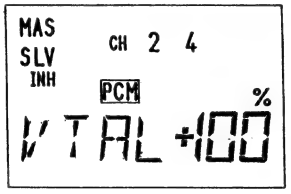
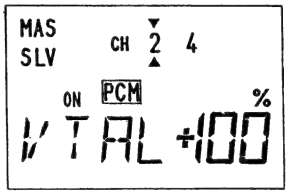


To COMB

To end the edit mode: Press the [MODE SELECT] keys simultaneously. → To normal display mode

Function	Display	Data setting
STAT [GLID] **START MIXING** This mixing is the offset mixing of the elevator, flap and aileron servos. This mixing may be used when taking off. [ON/OFF SWITCH]  	 (INH: Inhibit state)	[1] Activate/inhibit mode setting + – [DATA INPUT] Set the mode with the [DATA INPUT] keys. (+: Activate, –: Inhibit) [2] Each servo throw setting ① ◀ ▶ [CURSOR] Set the flashing display to "%" with the [CURSOR] keys. ② + – [DATA INPUT] Set the servo throw with the [DATA INPUT] keys. (When the "+" and "–" keys are pressed simultaneously, 0% is set.)

+ [MODE SELECT] → To ABRK

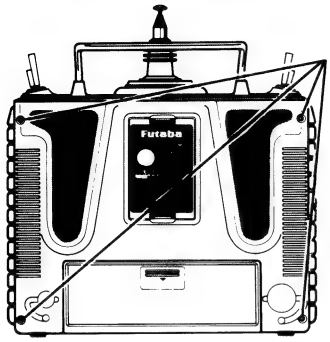
Function	Display	Data setting
VTAL [GLID] **V-TAIL MIXING** This mixing serves to control the combined elevators and rudders of V-tail models. The rate of the elevator and rudder can be set independently. • The operating channels are CH2 and CH4.	  	[1] Activate/Inhibit mode setting + – [DATA INPUT] Set the mode with the [DATA INPUT] keys. (+: Activate, –: Inhibit) [2] Elevator setting (Master CH: CH2) (CH2 servo throw setting) ① ◀ ▶ [CURSOR] Set the flashing display to "+" or "–" with the [CURSOR] keys. (Slave CH: CH2) + – [DATA INPUT] Set the direction of operation with the [DATA INPUT] keys. ② ◀ ▶ [CURSOR] Set the flashing display to "%" with the [CURSOR] keys. + – [DATA INPUT] Set the mixing rate with the [DATA INPUT] keys. (CH4 servo throw setting) ③ The same as the above. (Slave CH: CH4) [3] Rudder setting (Master CH: CH4) The same as the above. ([2] ① – ③)

+ [MODE SELECT] → To FLTR

● OTHER FUNCTIONS

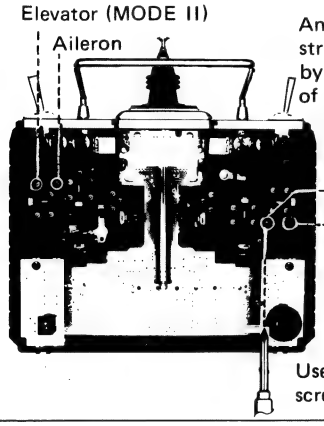
■ Stick lever tension adjustment

1 Remove the transmitter back cover.



Remove the four screws and remove the back cover.

2 Adjust the spring strength.

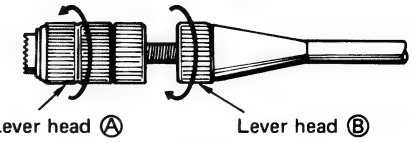


An arbitrary spring strength is obtained by turning the screw of each stick.

Use a small Phillips screwdriver.

■ Non-slip adjustable lever head adjustment

The length of the lever head can be changed.



Unlock lever heads Ⓐ and Ⓑ by turning them in opposite directions as shown by the arrows and adjust the stick to the most comfortable length.

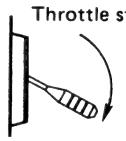
■ Receiver B.F/S function

When the receiver battery voltage drops below a certain value, the throttle servo moves to a preset position. (B.F/S mode)
At this time, reset the B.F/S mode and immediately land the aircraft.

B.F/S mode position setting

- Set the throttle channel (CH3) to the F/S function.
  Setting method P.10
- The set position should be close to maximum slow.

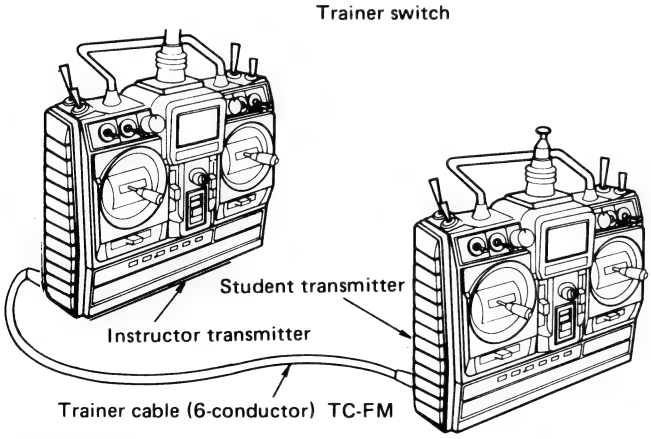
B.F/S mode resetting method



- When the throttle stick is set to the maximum slow position, the B.F/S mode is reset.

■ Trainer function (Trainer cable optional)

1 Connection to transmitter



*Operation is impossible if the instructor transmitter modulation mode and student transmitter modulation mode is different. Set to the same mode before using. Setting method P.23
*Always turn off the student transmitter power switch. Do not operate the trainer switch either.
*Use the functions of the other two transmitters with the same setting.

2 Operating at the instructor side

Operation is possible by turning on the instructor transmitter power switch. At this time, turn off the trainer switch.

3 Operating at the student side

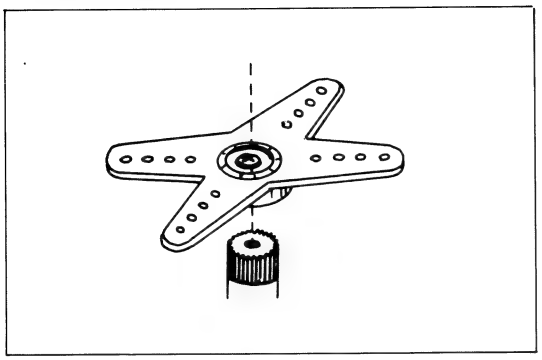
Operation is possible at the student transmitter while the trainer switch at the instructor side is held in the ON state.

■ SPLINED HORNS

The splined horns allow adjustment of the servo neutral position at the servo horn.

Neutral position adjustment

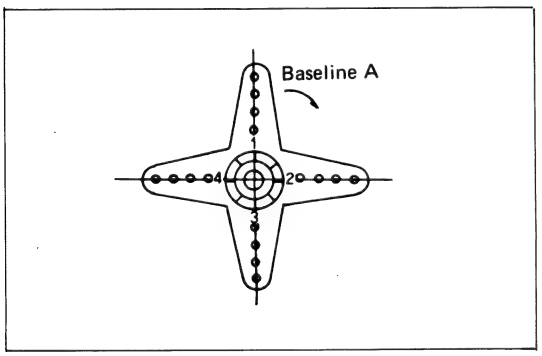
a) Angle divisions



1) The splined horn has 25 segments. The amount of change per segment is; 360 ÷ 25 = 14.4°.
2) The minimum adjustable angle is determined by the number of arms or number of holes. For four arms, the minimum adjustable angle is:

$$360^\circ \div \frac{(25 \times 4)}{\text{Number of divisions}} = 3.6^\circ$$

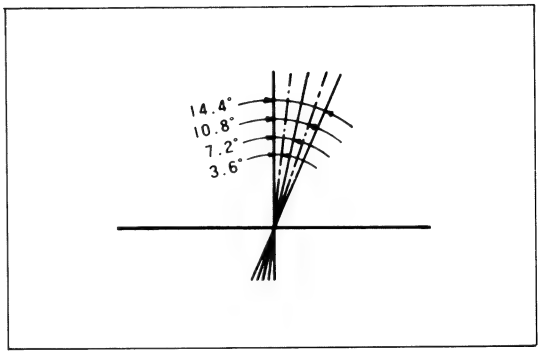
b) Effect



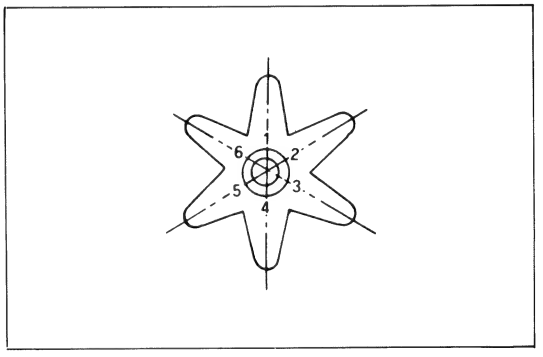
To shift the holes center line to the right (clockwise) relative to baseline A, shift arm 2 to the position of arm 1 and set it to the position closest to baseline A.

(Example) For a four arm horn, the angular shift per segment is 14.4°. The shift to the right is: 90° – (14.4 x 6) = 3.6°

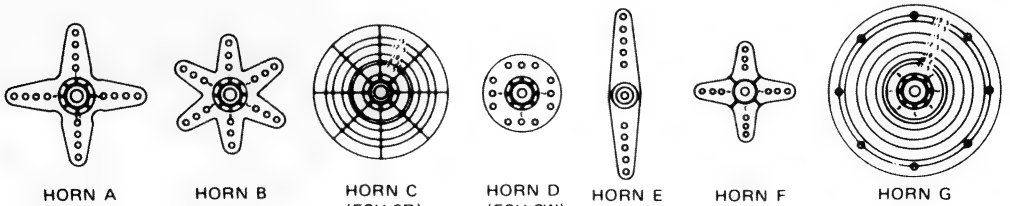
To shift by the same angle in the opposite direction, use the opposite arm number.



For a six arm horn, turn the arm counterclockwise and set arm 2 to the position of arm 1.
The adjustable angle is 60 – (14.4 x 4) = 2.4°.
Arm 3 shifts 4.8° to the right, arm 6 shifts 2.4° to the left, and arm 4 shifts 7.2° to the right and left.



The following splined horns are optional.



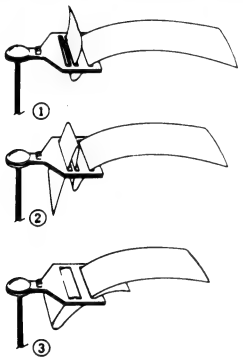
HORN A (FSH-6X) | HORN B (FSH-6S) | HORN C (FSH-6R) | HORN D (FSH-6W) | HORN E | HORN F | HORN G

● USING THE ACCESSORIES

■ Digital Proportional Frequencies (FOR U.S.A.)

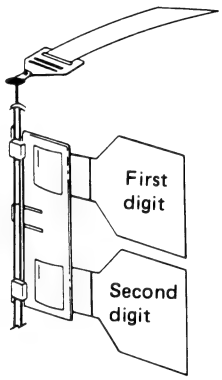
- The frequency of Futaba digital proportional sets can be changed within their own band. There are 2 different bands for you to choose from (27 MHz and 75 MHz.) Please see chart listed below for specific frequency and its intended use. Please note there are specific frequencies allocated for aircraft only and surface only use.
- The frequency can be changed within the same BAND by using a precisely matched pair of Futaba crystals. However, Futaba recommends that you return your system to our factory service department for frequency changing, as tuning may be necessary for proper operation. Changing frequency from one band to another is NOT possible.
- Always change frequency flag when frequency is changed. The frequency flag is to be attached to the top of antenna and the channel designation to the base. (See Drawing)
- It is illegal to change crystals on 75 MHz bands in the U.S.A.

■ ANTENNA FREQUENCY FLAG



Attach the frequency flag to the flag holder as shown in the figure.

The flag can be attached to, and removed from, the antenna with one touch.



■ Frequency Channel No. Flag Color (FOR U.S.A.)

26–27 MHz – Aircraft/car/boat

	Color
26.995	Brown
27.045	Red
27.095	Orange
27.145	Yellow
27.195	Green
27.255	Blue

50/53 MHz – Aircraft/car boat – Fcc Amature License required (2 and 3 channels not produced on these frequencies.)

	Channel No.
50.800	RC00
50.840	RC02
50.880	RC04
50.920	RC06
50.960	RC08
	Color
53.100	Black–Brown
53.200	Black–Red
53.300	Black–Orange
53.400	Black–Yellow
53.500	Black–Green
53.600	Black–Blue
53.700	Black–Violet
53.800	Black–Gray

72 MHz – Aircraft only

72.030	12	*72.470	34
*72.070	14	72.550	38
*72.110	16	72.590	40
*72.150	18	72.630	42
*72.190	20	72.670	44
*72.230	22	72.710	46
*72.270	24	72.750	48
*72.310	26	72.790	50
*72.350	28	72.830	52
*72.390	30	72.870	54
*72.430	32	72.910	56

75 MHz – Car/Boat only

75.430	62	75.750	78
75.470	64	75.790	80
75.510	66	75.830	82
75.550	68	75.870	84
75.590	70	*75.910	86
*75.630	72	*75.950	88
75.670	74	*75.990	90
75.710	76		

* Effective JAN 1, 1988

Mixing type "ACRO"

FUNCTION	SETTING POINT		INITIAL VALUE	SETTING RANGE	REMARK
ATV ADJUSTABLE TRAVEL VOLUME	Each CH Left/right (up/down)		100%	30~120%	
D/R DUAL RATE	AIL. ELE. RUD. Each direction of the D/R switch		100%	30~120%	Related func. → "COMB" func.
EXP EXPONENTIAL	AIL. ELE. THR. RUD. Each direction of the D/R switch		0%	−100~+100%	No D/R switch for the THR.
REV REVERSE	Each CH		Normal side "N"	"N"; Normal "R"; Reverse	
F/S FAIL SAFE	Each CH	INH/ACT	OFF (HOLD)	OFF, F/S	
		F/S position	50%	0~100%	
PMX1 PROGRAMMABLE MIXING 1	Between any two channels Left/right (up/down)	INH/ACT	INH	INH, ON/OFF	
		CH selection	(Master CH) (Slave CH) CH1 CH2	CH1~7	
		Mixing amount	+50%	±0~100%	
PMX2 PROGRAMMABLE MIXING 2	(The same as the above.)				
2→6 ELE.→FLP. MIXING	ELE. Up/down	INH/ACT	INH	INH, ON/OFF	
		Mixing amount	+50%	±0~100%	
ABRK AIR BRAKE MIXING	FLP. ELE. AIL.	INH/ACT	INH	INH, ON/OFF	(Mixing mode) "OF"; offset "On"; linear
		Position	0%	−100~+100%	
1→4 AIL.→RUD. MIXING	AIL. Left/right	INH/ACT	INH	INH, ON	(Mode) "1"; always "ON" "2"; RUD D/R SW
		Mixing amount	+50%	±0~100%	
SNP SNAP-ROLL	4 SNAP-ROLL directions AIL. ELE. RUD.	INH/ACT	INH	INH, ON/OFF	
		Position	(AIL.) (ELE.) (RUD.) (R/U) +100% +100% +100% (R/D) +100% −100% −100% (L/U) −100% +100% −100% (L/D) −100% −100% +100%	0~120% 0~120% 0~120% 0~120%	
		SAFETY mode	OFF	OFF, ON	
DIFF AILERON DIFFERENTIAL	AIL. (CH7, 1) Left/right	INH/ACT	INH	INH, ON	DIFF and FLAP-ERON cannot be on simultaneously. The function turned on last has priority.
		Mixing amount	+100%	±0~100%	
FLPR FLAPERON	AIL. (CH6, 1) Left/right FLP. (CH6, 1)	INH/ACT	INH	INH, ON	
		Mixing amount	(CH1) (CH6) (AIL. R) +100% +100% (AIL. L) +100% +100% (FLP.) +100% −100%	±0~100%	
ELVN ELEVON	AIL. (CH2, 1) Left/right ELE. (CH2, 1)	INH/ACT	INH	INH, ON	
		Mixing amount	(CH1) (CH2) (AIL. R) +100% +100% (AIL. L) +100% +100% (ELE.) +100% −100%	±0~100%	
FLTR FLAP TRIM	FLAP TRIM	INH/ACT	INH	INH, ON	
		Mixing amount	30%	0~100%	
STRM SUB TRIM	Each CH		0%	−100~+100%	
PARA PARAMETER	(See the following functions; "RSET"~"MOD" function)				
RSET DATA RESET	All setting data in the active model memory		−	In the active model memory	
ATL ATL TRIM ON/OFF	THR. trim		ON	ON, OFF	
COMB COMBINATION SWITCH	AIL. D/R switch		MODE "1"	MODE "1"~"3"	Related func. → "D/R" func.
MXSW PROGRAMMABLE MIXING SWITCH	Each programmable mixing switch		MODE "12"	MODE "12", "1−", "−2" "−−"	
(MIXING TYPES)	"ACRO", "GLID", "HLI1", "HLI2"		"ACRO"	"ACRO", "GLID", "HLI1", "HLI2"	
MOD MODULATION	PCM/PPM		MODE "C" (PCM)	"C"; PCM "F"; PPM	
COPY DATA COPY	Each model memory		−	Model memory 1~4	
TRIM TRIM MEMORY	All stick CH trims		−	CH1~4	Except the ATL trim for THR.
SEL MODEL SELECT	Each model memory		−	Model memory 1~4	
STCK STICK MODE SELECT	(Usually this function is not used.)				Their functions are effective in all model memories.
TREV THROTTLE FUNCTION REVERSE	THR.		Normal side ("N")	"N"; Normal "R"; Reverse	

● SUMMARY OF PROGRAMMES

Mixing type "HLI1" "HLI2"

FUNCTION	SETTING POINT		INITIAL VALUE	SETTING RANGE	REMARK
ATV ADJUSTABLE TRAVEL VOLUME	Each CH Left/right (up/down)		100%	30~120%	
D/R DUAL RATE	AIL. ELE. RUD. Each direction of the D/R switch		100%	30~120%	Related func. → "COMB" func.
EXP EXPONENTIAL	AIL. ELE. THR. RUD. Each direction of the D/R switch		0%	−100~+100%	No D/R switch for the THR.
REV REVERSE	Each CH		Normal side "N"	"N"; Normal "R"; Reverse	
F/S FAIL SAFE	Each CH	INH/ACT	OFF (HOLD)	OFF, F/S	
		F/S position	50%	0~100%	
PMX PROGRAMMABLE MIXING	Between any two channels Left/right (up/down)	INH/ACT	INH	INH, ON/OFF	
		CH selection	(Master CH) 1CH (Slave CH) 2CH	CH1~7	
		Mixing amount	+50%	±0~100%	
T–NR NORMAL THROTTLE CURVE	THR. curve	(Point) Amount	(1) (2) (3) (4) (5) 0% 25% 50% 75% 100%	0~100%	
T–I1 IDLE-UP 1 THROTTLE CURVE	THR. curve	INH/ACT	INH	INH, ON/OFF	
		(Point) Amount	(1) (2) (3) (4) (5) 0% 25% 50% 75% 100%	0~100%	
T–I2 IDLE-UP 2 THROTTLE CURVE	THR. curve	INH/ACT (Point) Amount	(The same as the above.)		
HOLD THROTTLE HOLD	THR.	INH/ACT	INH	INH, ON/OFF	
		Position	−70%	−100~+100%	
P–NR NORMAL PITCH CURVE	PIT. curve	(Point) Amount	(1) (2) (3) (4) (5) 0% 25% 50% 75% 100%	0~100%	
P–I1 IDLE-UP 1 PITCH CURVE	PIT. curve	(Point) Amount	(The same as the above.)		
P–I2 IDLE-UP 2 PITCH CURVE	PIT. curve	(Point) Amount	(The same as the above.)		
P–HD THROTTLE HOLD PITCH CURVE	PIT. curve	(Point) Amount	(The same as the above.)		
HV–T HOVERING THROTTLE	Throttle trim function at the hovering point		ON	ON, INH	
HV–P HOVERING PITCH	Pitch trim function at the hovering point		ON	ON, INH	
ID–H IDLE-UP HIGH PITCH	PIT. rate		100%	30~100%	
NR–L NORMAL LOW PITCH	PIT. rate		100%	30~100%	
REVO REVOLUTION MIXING	PIT. High/low	INH/ACT	ON	ON, INH	ON/OFF at "HOLD" "1"; OFF "2"; ON
		Mixing amount	−50%	±0~100%	
R–OF RUDDER OFFSET	RUD. ON/OFF switch	INH/ACT	INH	INH, ON/OFF	
		Offset amount	0%	−100~+100%	
		ON/OFF Switch	IDLE-UP switch	IDLE-UP/CH5 switch	
R–DL RUDDER OFFSET DELAY	Delay amount		0%	0~100%	
INVR INVERTED FLIGHT	Cross rate	INH/ACT	INH	INH, Inverted mode	
		Rate	0%	−100~+100%	
IV–H INVERTED FLIGHT HIGH PITCH	PIT.		100%	30~100%	
IV–L INVERTED FLIGHT LOW PITCH	PIT.		100%	30~100%	
PARA PARAMETER	(See the following functions; "RSET"~"MOD" function)				
RSET DATA RESET	All setting data in the active model memory		—	In the active model memory	
ATL ATL TRIM ON/OFF	THR. trim		ON	ON, OFF	
COMB COMBINATION SWITCH	AIL. D/R switch		MODE "1"	MODE "1"~"3"	Related func. → "D/R" func.
MXSW PROGRAMMABLE MIXING SWITCH	Each programmable mixing switch		MODE "12"	MODE "12", "1–", "–2" "––"	
(MIXING TYPES)	"ACRO", "GLID", "HLI1", "HLI2"		"ACRO"	"ACRO", "GLID", "HLI1", "HLI2"	
MOD MODULATION	PCM/PPM		MODE "C" (PCM)	"C"; PCM "F"; PPM	
COPY DATA COPY	Each model memory		—	Model memory 1~4	
TRIM TRIM MEMORY	All stick CH trims		—	CH1~4	Except the ATL trim for THR.
SEL MODEL SELECT	Each model memory		—	Model memory 1~4	
STCK STICK MODE SELECT	(Usually this function is not used.)				Their functions are effective in all model memories.
TREV THROTTLE FUNCTION REVERSE	THR.		Normal side ("N")	"N"; Normal "R"; Reverse	

Mixing type "GLID"

FUNCTION	SETTING POINT		INITIAL VALUE	SETTING RANGE	REMARK
ATV ADJUSTABLE TRAVEL VOLUME	Each CH Left/right (up/down)		100%	30~120%	
D/R DUAL RATE	AIL. ELE. RUD. Each direction of the D/R switch		100%	30~120%	Related func. → "COMB" func.
EXP EXPONENTIAL	AIL. ELE. THR. RUD. Each direction of the D/R switch		0%	−100~+100%	No D/R switch for the THR.
REV REVERSE	Each CH		Normal side "N"	"N"; Normal "R"; Reverse	
F/S FAIL SAFE	Each CH	INH/ACT	OFF (HOLD)	OFF, F/S	
		F/S position	50%	0~100%	
PMX1 PROGRAMMABLE MIXING 1	Between any two channels Left/right (up/down)	INH/ACT	INH	INH, ON/OFF	
		CH selection	(Master CH) CH1 (Slave CH) CH2	CH1~7	
		Mixing amount	+50%	±0~100%	
PMX2 PROGRAMMABLE MIXING 2	(The same as the above.)				
STAT START MIXING	ELE. FLP. AIL.	INH/ACT	INH	INH, ON/OFF	
		Mixing amount	0%	−100~+100%	
ABRK AIR BRAKE MIXING	FLP. ELE. AIL.	INH/ACT	INH	INH, ON/OFF	(Mixing mode) "OF"; offset "On"; linear
		Position	0%	−100~+100%	
1 → 4 AIL. → RUD. MIXING	AIL. Left/right	INH/ACT	INH	INH, ON	(Mode) "1"; always "ON" "2"; RUD D/R SW
		Mixing amount	+50%	±0~100%	
DIFF AILERON DIFFERENTIAL	AIL. (CH7, 1) Left/right	INH/ACT	INH	INH, ON	DIFF and FLAPERON cannot be on simultaneously. The function turned on last has priority.
		Mixing amount	+100%	±0~100%	
FLPR FLAPERON	AIL. (CH6, 1) Left/right FLP. (CH6, 1)	INH/ACT	INH	INH, ON	
		Mixing amount	(CH1) (CH6) (AIL. R) +100% +100% (AIL. L) +100% +100% (FLP.) +100% −100%	±0~100%	
VTAL V-TAIL MIXING	ELE. (2, 4CH) RUD. (2, 4CH)	INH/ACT	INH	INH, ON	
		Mixing amount	(CH2) (CH4) (ELE.) +100% +100% (RUD.) +100% −100%	±0~100%	
FLTR FLAP TRIM	FLAP TRIM	INH/ACT	INH	INH, ON	
		Mixing amount	30%	0~100%	
STRM SUB TRIM	Each CH		0%	−100~+100%	
PARA PARAMETER	(See the following functions; "RSET"~"MOD" function)				
RSET DATA RESET	All setting data in the active model memory		–	In the active model memory	
ATL ATL TRIM ON/OFF	THR. trim		ON	ON, OFF	
COMB COMBINATION SWITCH	AIL. D/R switch		MODE "1"	MODE "1"~"3"	Related func. → "D/R" func.
MXSW PROGRAMMABLE MIXING SWITCH	Each programmable mixing switch		MODE "12"	MODE "12", "1−", "−2" "−−"	
(MIXING TYPES)	"ACRO", "GLID", "HLI1", "HLI2"		"ACRO"	"ACRO", "GLID", "HLI1", "HLI2"	
MOD MODULATION	PCM/PPM		MODE "C" (PCM)	"C"; PCM "F"; PPM	
COPY DATA COPY	Each model memory		–	Model memory 1~4	
TRIM TRIM MEMORY	All stick CH trims		–	CH1~4	Except the ATL trim for THR.
SEL MODEL SELECT	Each model memory		–	Model memory 1~4	
STCK STICK MODE SELECT	(Usually this function is not used.)				Their functions are effective in all model memories.
TREV THROTTLE FUNCTION REVERSE	THR.		Normal side ("N")	"N"; Normal "R"; Reverse	

● FP-T7UAPS DATA SHEET (MIXING TYPE "ACRO")

MODEL No.		MODULATION	PCM·PPM	ATL trim	ON·OFF

		1 AIL	2 ELE	3 THR	4 RUD	5 GER	6 FLP	7 AUX		
ATV ADJUSTABLE TRAVEL VOLUME	R/U								%	
	L/D									
D/R DUAL RATE	U								%	COMB COMBINATION SWITCH: MODE 1 / MODE 2 / MODE 3
	D									
EXP EXPONENTIAL	U								%	
	D									
REV REVERSE		NOR.	NOR.	NOR.	NOR.	NOR.	NOR.	NOR.		
		REV.	REV.	REV.	REV.	REV.	REV.	REV.		
F/S FAIL SAFE		HOLD	HOLD	HOLD	HOLD	HOLD	HOLD	HOLD		
		F/S	F/S	F/S	F/S	F/S	F/S	F/S		
	POS.								%	
STRM SUB TRIM									%	
FLTR FLAP TRIM									%	Trim operation: INH / ON

	INH/ACT	RATE			MODE	
PMX1 PROGRAMMABLE MIXING 1	INH	(CH)	R/U	%	MXSW PROGRAMMABLE MIXING SWITCH	MODE "12"
	ON/OFF	→	L/D	%		MODE "1–"
PMX2 PROGRAMMABLE MIXING 2	INH	(CH)	R/U	%		MODE "–2"
	ON/OFF	→	L/D	%		MODE "––"
2→6 ELEVATOR → FLAP MIXING	INH		U	%		
	ON/OFF		D	%		
ABRK AIR BRAKE MIXING	INH	(AIL) (ELE) (FLP)			LINEAR MIXING "On"	
	ON/OFF	% % %			OFFSET MIXING "OF"	
1→4 AILERON → RUDDER MIXING	INH		R	%	Always ON "1"	
	ON/OFF		L	%	RUD D/R switch "2"	
SNP SNAP-ROLL	INH	(AIL) (ELE) (RUD)			SAFETY mode released "F"	
	ON/OFF	(R/U) % % %			SAFETY mode set "5L/5F"	
		(R/D) % % %				
		(L/U) % % %				
		(L/D) % % %				
DIFF AILERON DIFFERENTIAL	INH	(CH1) (CH7)				
	ON	(R) % %				
		(L) % %				
FLPR FLAPERON	INH	(CH1) (CH6)				
	ON	(AIL-R) % %				
		(AIL-L) % %				
		(FLP) % %				
ELVN ELEVON	INH	(CH1) (CH2)				
	ON	(AIL-R) % %				
		(AIL-L) % %				
		(ELE) % %				

● FP-T7UAPS DATA SHEET (MIXING TYPE "HLI1/2")

MODEL No.	MODULATION	PCM·PPM	ATL trim	ON·OFF

		1 AIL	2 ELE	3 THR	4 RUD	5 GYR	6 PIT	7 AUX	
ATV ADJUSTABLE TRAVEL VOLUME	R/U								%
	L/D								
D/R DUAL RATE	U								%
	D								
EXP EXPONENTIAL	U								%
	D								
REV REVERSE		NOR.	NOR.	NOR.	NOR.	NOR.	NOR.	NOR.	
		REV.	REV.	REV.	REV.	REV.	REV.	REV.	
F/S FAIL SAFE		HOLD	HOLD	HOLD	HOLD	HOLD	HOLD	HOLD	
		F/S	F/S	F/S	F/S	F/S	F/S	F/S	
	POS.								%

COMB COMBINATION SWITCH: MODE 1 / MODE 2 / MODE 3

	INH/ACT	Rate					MODE
PMX PROGRAMMABLE MIXING	INH	(CH)		R/U %			
	ON/OFF	→		L/D %			
T–NR NORMAL THROTTLE CURVE		(1) %	(2) %	(3) %	(4) %	(5) %	
T–I1 IDLE-UP 1 THROTTLE CURVE	INH	(1)	(2)	(3)	(4)	(5)	
	ON/OFF	%	%	%	%	%	
T–I2 IDLE-UP 2 THROTTLE CURVE	INH	(1)	(2)	(3)	(4)	(5)	
	ON/OFF	%	%	%	%	%	
HOLD THROTTLE HOLD	INH				%		
	ON/OFF						
P–NR NORMAL PITCH CURVE		(1) %	(2) %	(3) %	(4) %	(5) %	
P–I1 IDLE-UP 1 PITCH CURVE		(1) %	(2) %	(3) %	(4) %	(5) %	
P–I2 IDLE-UP 2 PITCH CURVE		(1) %	(2) %	(3) %	(4) %	(5) %	
P–HD THROTTLE HOLD PITCH CURVE		(1) %	(2) %	(3) %	(4) %	(5) %	
HV–T HOVERING THROTTLE	INH						
	ON						
HV–P HOVERING PITCH	INH						
	ON						
ID–H IDLE-UP HIGH PITCH					%		
NR–L NORMAL LOW PITCH					%		
REVO REVOLUTION MIXING	INH	Main rotor	"–"	H %		ON/OFF at THROTTLE HOLD	OFF "1"
	ON		"+"	L %			ON "2"
R–OF RUDDER OFFSET	INH			Offset		ON/OFF switch	IDLE-UP "1"
	ON/OFF			%			CH5 "2"
R–DL RUDDER OFFSET DELAY				Delay %			
INVR INVERTED FLIGHT	INH			Cross rate			
	INVERTED			%			
IV–H INVERTED FLIGHT HIGH PITCH					%		
IV–L INVERTED FLIGHT LOW PITCH					%		

● FP-T7UAPS DATA SHEET (MIXING TYPE "GLID")

MODEL No.	MODULATION	PCM·PPM	ATL trim	ON·OFF

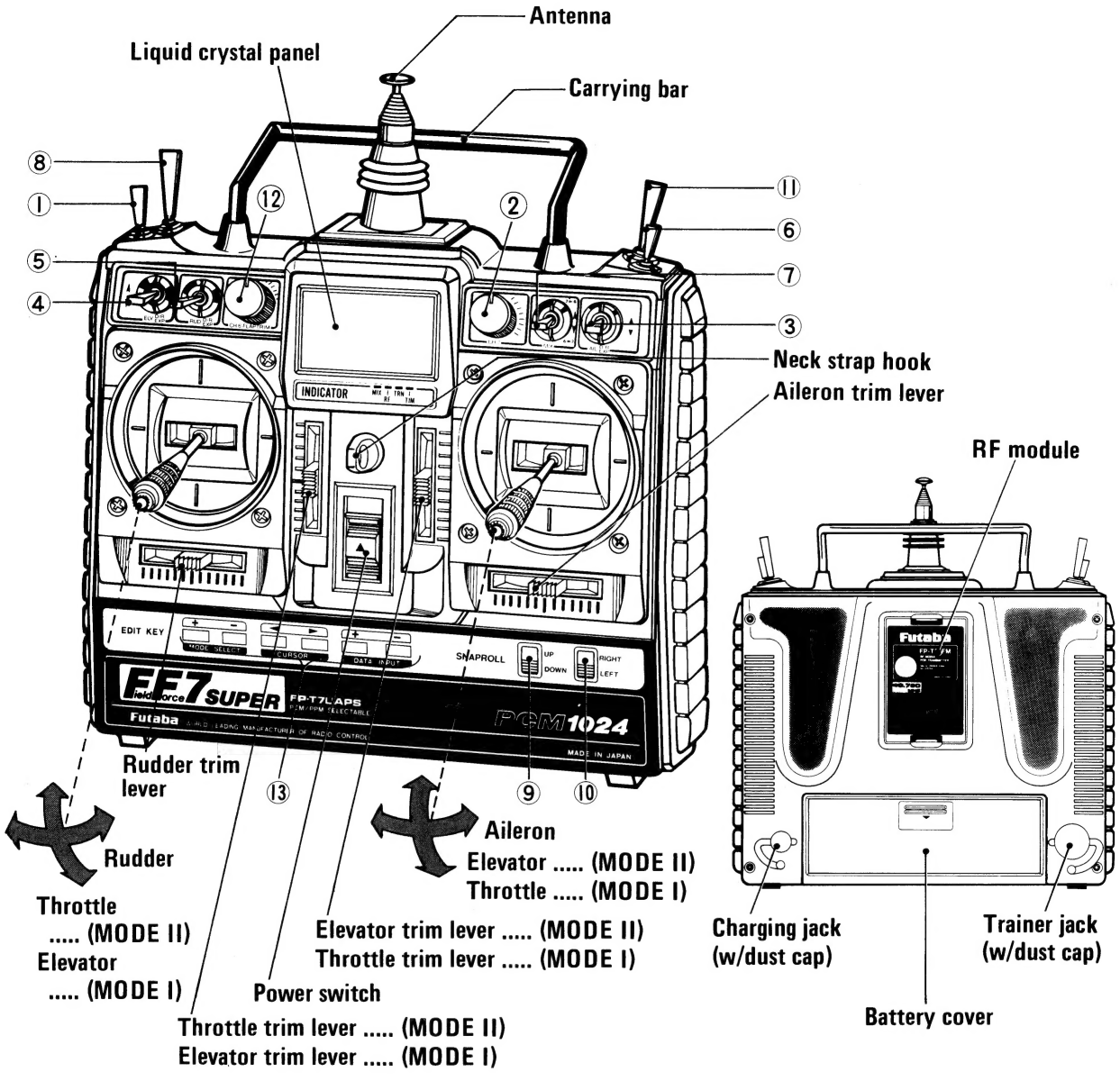
		1 AIL	2 ELE	3	4 RUD	5 GER	6 FLP	7 AUX	
ATV ADJUSTABLE TRAVEL VOLUME	R/U								%
	L/D								
D/R DUAL RATE	U								% COMB COMBINATION SWITCH: MODE 1 / MODE 2 / MODE 3
	D								
EXP EXPONENTIAL	U								%
	D								
REV REVERSE		NOR.	NOR.	NOR.	NOR.	NOR.	NOR.	NOR.	
		REV.	REV.	REV.	REV.	REV.	REV.	REV.	
F/S FAIL SAFE		HOLD	HOLD	HOLD	HOLD	HOLD	HOLD	HOLD	
		F/S	F/S	F/S	F/S	F/S	F/S	F/S	
	POS.								%
STRM SUB TRIM									%
FLTR FLAP TRIM									% Trim operation: INH / ON

	INH/ACT	RATE		MODE
PMX1 PROGRAMMABLE MIXING 1	INH	(CH)	R/U %	MXSW PROGRAMMABLE MIXING SWITCH: MODE "12" / MODE "1–" / MODE "–2" / MODE "__"
	ON/OFF	→	L/D %	
PMX2 PROGRAMMABLE MIXING 2	INH	(CH)	R/U %	
	ON/OFF	→	L/D %	
STAT START MIXING	INH	(AIL) %	(ELE) % (FLP) %	
	ON/OFF			
ABRK AIR BRAKE MIXING	INH	(AIL) %	(ELE) % (FLP) %	LINEAR MIXING "On" / OFFSET MIXING "OF"
	ON/OFF			
1→4 AILERON → RUDDER MIXING	INH		R %	Always ON "1" / RUD. D/R switch "2"
	ON/OFF		L %	
DIFF AILERON DIFFERENTIAL	INH	(CH1)	(CH7)	
	ON	(R) % (L) %	% %	
FLPR FLAPERON	INH	(CH1)	(CH6)	
	ON	(AIL-R) % (AIL-L) % (FLP) %	% % %	
VTAL V-TAIL MIXING	INH	(CH2)	(CH4)	
	ON	(ELE) % (RUD) %	% %	

Memo

Memo

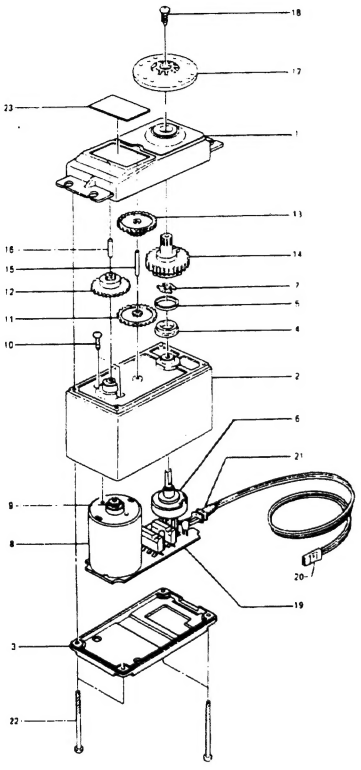
Memo



No.	Mixing type "ACRO"	Mixing type "GLID"	Mixing type "HLI 1/2"
①	Landing gear switch (CH5) ... (MODE II) Programmable mixing switch ... (MODE I)	Landing gear switch (CH5) ... (MODE II) Programmable mixing switch ... (MODE I)	Throttle hold switch ... (MODE II) CH5/inverted switch ... (MODE I)
②	AUX knob (CH7)	AUX knob (CH7)	Hovering throttle knob
③	Aileron D/R switch	Aileron D/R switch	Aileron D/R switch
④	Elevator D/R switch	Elevator D/R switch	Elevator D/R switch/ programmable mixing switch
⑤	Rudder D/R switch	Rudder D/R switch	Rudder D/R/CH7 switch
⑥	Programmable mixing switch ... (MODE II) Landing gear switch (CH5) ... (MODE I)	Programmable mixing switch ... (MODE II) Landing gear switch (CH5) ... (MODE I)	CH5/inverted switch ... (MODE II) Throttle hold switch ... (MODE I)
⑦	2 → 6/air brake mixing switch	Start/air brake mixing switch	Idle-up 1/2 switch
⑧	Snap roll switch ... (MODE II) Trainer switch ... (MODE I)	Trainer switch ... (MODE I)	Trainer switch ... (MODE I)
⑨	Snap roll direction switch	–	–
⑩	Snap roll direction switch	–	–
⑪	Trainer switch ... (MODE II) Snap roll switch ... (MODE I)	Trainer switch ... (MODE II)	Trainer switch ... (MODE II)
⑫	Flap knob/flap trim lever (CH6)	Flap knob/flap trim lever (CH6)	CH6/hovering pitch knob
⑬	Edit keys	Edit keys	Edit keys

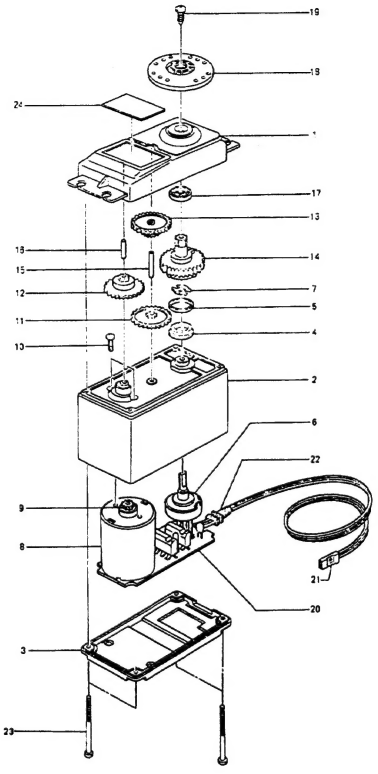
● SERVO EXPLODED VIEW

FP-S148



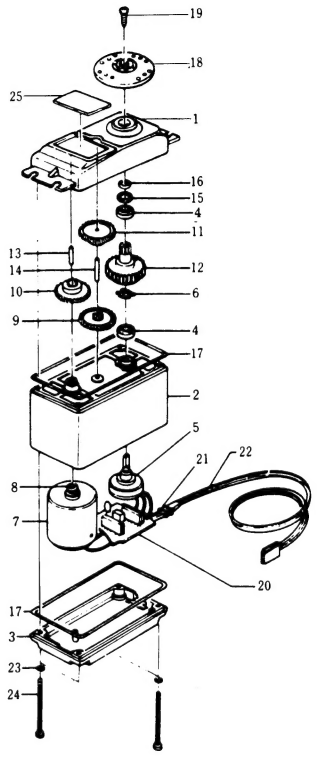
No.	Part Name	Part No.
1	Upper case	S06015
2	Middle case	S06005
3	Bottom case	S06006
4	Metal bearing inner	S04137
5	Metal bearing outer	S04136
6	TR133-15	I39668
7	VR drive plate	S02753
8	Motor	S91239
9	Motor pinion	S02461
10	Motor mounting screw	J50002
11	1st gear	S02490
12	2nd gear	S02491
13	3rd gear	S03266
14	Final gear	S02752
15	Intermediate shaft	S02495
16	2nd shaft	S02494
17	Splined horn D	S01239
18	Horn mounting screw	J55178
19	AMP	AS1157
20	S148 ... 3PB-SWRB300C	AT2453
21	Grommet	S90045
22	Case mounting screw	S50360
23	Nameplate	S60099

FP-S3001



No.	Part Name	Part No.
1	Upper case	S06100
2	Middle case	S06005
3	Bottom case	S06006
4	Metal bearing inner	S04137
5	Metal bearing outer	S04136
6	TR133-15	I39668
7	VR drive plate	S02753
8	Motor	S91239
9	Motor pinion	S02461
10	Motor mounting screw	J50002
11	1st gear	S02490
12	2nd gear	S02491
13	3rd gear	S03266
14	Final gear	S02752
15	Intermediate shaft	S02495
16	2nd shaft	S02494
17	Bearing L-1060	S04130
18	Splined horn D	S01239
19	Horn mounting screw	J55178
20	AMP	AS1341
21	3PB-SWRB300C	AT2453
22	Grommet	S90045
23	Case mounting screw	S50085
24	Nameplate	S60189

FP-S9101



No.	Part name	Part No.
1	Upper case	FCS-9101
2	Middle case	FCS-9101
3	Bottom case	FCS-9101
4	Ball bearing	S04130
5	Potentiometer	I39995
6	VR drive plate	S02753
7	Coreless motor	S91265
8	Motor pinion	S02497
9	1st gear	FGS-9101
10	2nd gear	FGS-9101
11	3rd gear	FGS-9101
12	Final gear	FGS-9101
13	2nd shaft	S02481
14	Intermediate shaft	S02480
15	Spacer washer	S02486
16	Seal ring	S90415
17	O-ring	S90417
18	Servo horn D	FSH-6W
19	Horn mounting screw	FSH-4I
20	Printed wiring board	AS1333
21	Lead wire packing	S90045
22	3PB-WRB-300 B	FPC-8MB
23	Screw O-ring	S90410
24	Case mounting screw	J50085
25	S9101 Nameplate	S60093